



Final Report

of the
**Indiana Lakes Management
Work Group**

December 1999

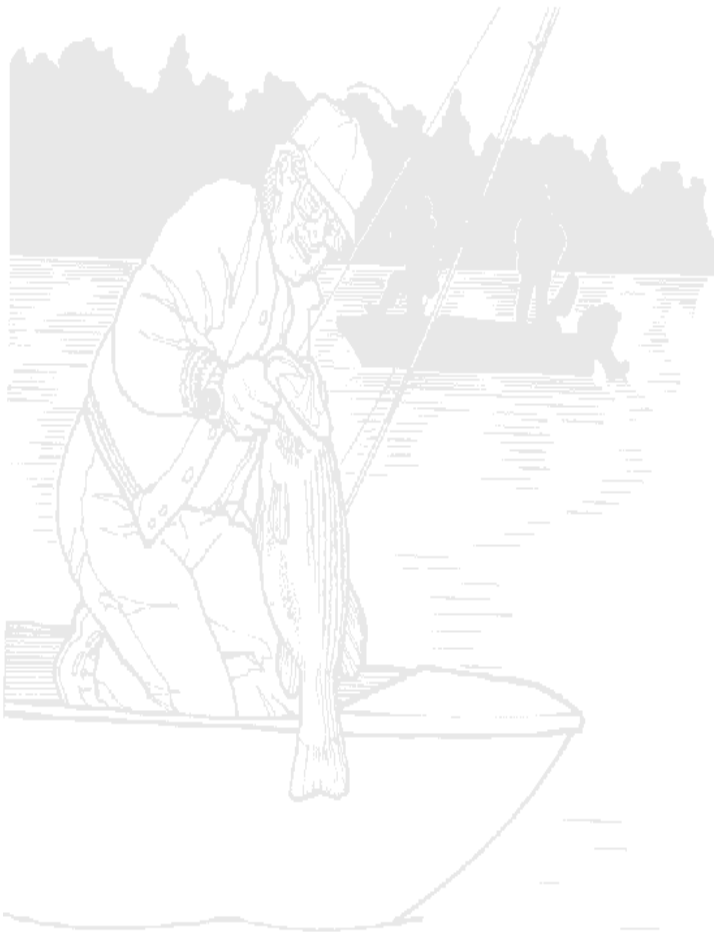


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Preface

Every year, dozens of “task forces” and “work groups” are formed to address all manner of issues that have impact on our quality of life. Sometimes, the enthusiasm that the participants felt in the early days of their efforts wears off and little is accomplished. Other times, best intentions are stymied by differences of opinion, personality conflicts, or outright hostility. Still other times, work comes to an end with the disappointing realization that nothing of substance was accomplished.

But every so often, a work group is formed that does what it set out to do. The Indiana Lakes Management Work Group (Work Group) is one such group.

After being formed by the General Assembly in 1997, this diverse, 26-member group met nearly every month for two years to take public comments and propose solutions for problems affecting Indiana lakes. The Work Group addressed the entire gamut of issues affecting lakes, including water quality, recreational issues, nuisance plants and animals, flooding/drainage, and health concerns, to name a few.

Not surprisingly, Work Group members did not always see eye to eye on these issues, and some of the recommendations had to be amended, edited, and/or reworked three or four times before consensus could be reached. However, members never let their differences derail their goal or detract from the work at hand. The proof is in the results: Out of 53 total recommendations that were developed by members and presented to the Work Group for ratification, 3 were dropped or replaced by subsequent recommendations, 2 were combined with other, similar recommendations, *and all 48 remaining recommendations were approved by consensus.*

In addition, because four legislators from the Indiana General Assembly were members, the Work Group had the unique opportunity to help craft several of their recommendations into draft bills for immediate introduction to the General Assembly. This action ensures that the Work Group’s efforts will move forward, and that the recommendations developed over the past two years will not simply be filed away without action.

Finally, the Work Group recognized very early in the process that there was a tremendous need for a “clearinghouse” of information

concerning lake issues. To address this need, the Work Group developed an Internet web site that provides a wealth of information and literally hundreds of links to other agencies and organizations that deal with lakes issues daily. The Work Group hopes that this site (see *Outcomes* section, page 5) will develop into a “one-stop-shopping” site for anyone who has an interest in or concern about Indiana’s lakes.

Lakes are one of Indiana’s most precious natural resources, and the Indiana Lakes Management Work Group has worked hard for two years to develop solutions to many of the problems that currently face this resource. Now it is up to all lake stakeholders to work together to implement the report’s recommendations, so Indiana’s lakes can continue to benefit the people of the state for generations to come.

Indiana Lakes Management Work Group Membership Roster

Senator Robert Meeks, LaGrange, Chairman
Senator Katie Wolf, Monticello
Representative Dennis Kruse, Auburn
Representative Claire Leuck, Fowler

Lisa Barnese-Walz, Limnologist, U.S. Army Corps of Engineers
Stephen Cox, Environmental Interests
Brian Daggy for Robert White, Indiana Farm Bureau
Robert Eddleman, State Conservationist, USDA-Natural Resources
Conservation Service
Mark GiaQuinta, Attorney, Haller & Colvin, 4th Congressional District
Charles Gill, Osgood Water Utility, 9th Congressional District
Jan Henley, Indiana Department of Environmental Management, Office of
Water Management
David Herbst, Former Deputy Director, Indiana Department of Natural
Resources, At-large
William Jones, Professor, Indiana University, 8th Congressional District
Richard Kitchell, Vice President, Smith Barney, 1st Congressional
District
Jeffrey Krevda, Dredging Contractor, 5th Congressional District
Holly LaSalle, Indiana Lakes Management Society
Robert Madden, Lake Lemon Conservancy District, At-large
Thomas McComish, Professor, Ball State University, 2nd Congressional
District
Jed Pearson, Department of Natural Resources Fisheries Biologist
Dale Pershing, Indianapolis Water Company, 10th Congressional District
Donald Seal, Director of Parks and Recreation, Noblesville, 6th Congressional
District
Anne Spacie, Professor, Purdue University, 7th Congressional District
Lt. Ralph Taylor, Department of Natural Resources, Division of Law
Enforcement
Garry Tom, Sr., Soil and Water Conservation Districts
Gwen White, Biologist, Department of Natural Resources, Lake and
River Enhancement Program
JoEileen Winski, Councilwoman/Assessor/Appraiser, 3rd Congressional
District

Project Coordinator
Jim Ray, Chief, Department of Natural Resources, Lake and River
Enhancement Program

Project Facilitators
David Case and Phil Seng, D.J. Case & Associates, Mishawaka, Indiana

Statutory Directive

The Indiana General Assembly enacted legislation (P.L. 239-1997) creating the Indiana Lakes Management Work Group (Work Group) and directing the Work Group to:

- 1 Conduct public meetings to hear testimony and receive written comments concerning problems affecting the lakes of Indiana.
- 2 Develop proposed solutions to problems affecting the lakes of Indiana.
- 3 Issue reports to the natural resources study committee when directed to do so.
- 4 Issue:
 - a an interim report before July 1, 1998; and
 - b a final report before December 31, 1999.

Upon completion of its proposed solutions to lake problems, the Work Group was directed to make the solutions available in writing to:

- 1 the natural resources study committee;
- 2 the department of natural resources; and
- 3 the public.

Introduction and Reasons for Project

Lakes are one of Indiana's most precious natural resources. They provide drinking water, flood control, and myriad recreation opportunities including boating, skiing, swimming, diving, fishing, hunting, trapping, wildlife viewing, and photography for all Hoosiers. These same opportunities also bring visitors and economic benefits to our state.

Indiana's lakes are under pressure from all sides. Because they provide so many benefits, many lakes are literally being "loved to death." It is critical that Hoosiers protect and conserve lake resources to provide the greatest good for the most people for the longest time. Future generations depend on the actions we take today in order to be able to enjoy and benefit from lakes as we do.

The effort to systematically address lake issues was initiated in 1996 through two public meetings at Tri-State University in Angola under the guidance of

Senator Robert Meeks and David Herbst, then a deputy director of the Indiana Department of Natural Resources. At these meetings, about 600 citizens developed an extensive list of lake problems and challenges, and offered examples of how different groups and agencies were providing solutions to some of the problems.

The Indiana General Assembly established the 26-member Lakes Management Work Group in 1997 to take public comments and develop solutions for problems affecting Indiana lakes. Work Group members represented a broad base of lake and reservoir organizations, users, and

researchers from across the state, including Senator Robert Meeks (R- LaGrange), Senator Katie Wolf (D-Monticello), State Representative Dennis Kruse (R-Auburn), and State Representative Claire Leuck (D-Fowler).

Summary of Work Program

The Work Group met almost monthly during 1998 and 1999 to hear testimony, gather information, address issues and concerns, and develop recommendations for solutions to problems affecting Indiana's lakes.

Following is a list of meeting dates. See Appendix A (separate cover) for complete summaries of each of these meetings. All meetings took place in Indianapolis, except where noted.

November 13, 1997
December 18, 1997
January 9, 1998
February 6, 1998
March 26, 1998
April 16, 1998 (LaPorte)
May 14, 1998
June 11, 1998 (Pokagon State Park, Angola)
July 16, 1998 (Monticello)
August 20, 1998 (Bloomington)
September 21, 1998
October 26, 1998
December 2, 1998
January 25, 1999
February 22, 1999
March 24, 1999
April 21, 1999
May 19, 1999
June 14 -15, 1999 (Lake Wawasee, Syracuse)
July 28, 1999
August 18, 1999
September 28, 1999
October 26, 1999
November 18, 1999

Summary of Testimony

The public was invited to all Work Group meetings, and everyone who attended was given the opportunity to submit testimony. Appendix B (separate cover) contains all of the testimony submitted by members of the public at Work Group meetings.

Work Group Vision/Mission

The Work Group developed the following statements to guide development of recommendations for solutions to the issues facing Indiana's lakes.

Precious Resources

Lakes are one of Indiana's most precious natural resources. They provide water supplies for drinking, industry, and other uses, flood control, educational opportunities, increased property values for lake frontage, as well as myriad recreational opportunities including boating, skiing, swimming, diving, fishing, hunting, trapping, wildlife viewing, and photography for all Hoosiers. These same opportunities also bring visitors and economic benefits to our state.

Lake Conservation

Indiana's lakes are under pressure from all sides. Because they provide so many benefits, many lakes are literally being "loved to death." It is critical that Hoosiers protect and conserve lake resources to provide the greatest good for the most people for the longest time. Future generations depend on the actions we take today in order to be able to enjoy and benefit from lakes as we do.

The Indiana General Assembly established the 26-member Lakes Management Work Group in 1997 to take public comments and develop solutions for problems affecting Indiana lakes. Work Group members represent a broad base of lake and reservoir organizations, users, and researchers from across the state. Members took their charge very seriously. They donated their time and expertise through monthly meetings for two years before making final recommendations to the General Assembly.

Mission Statement

The mission of the Indiana Lakes Management Work Group is to develop solutions to problems facing Indiana lakes—solutions that result in:

- Improved water quality—lakes getting better instead of worse
- Better management of lakes that respects and accommodates multiple users
- Increased and broadened interest among Hoosiers in safeguarding lakes for future generations
- Improved recreational opportunities for all lake users

Guiding Principles

The following principles describe the philosophy that should guide the Work Group in its efforts.

The Work Group's efforts and resulting Action Plan should:

1. Recognize the state's lakes as scarce resources
2. Be comprehensive and coordinated among all interests in the state
3. Identify problems we can solve immediately and consider visionary, long-term solutions
4. Consider the role of local and state government leaders and the public
5. Consider funding sources for all recommendations
6. Weigh the risks, costs, and benefits of recommendations
7. Show that the Work Group listened to and considered public input
8. Consider the long-term consequences if we don't take action now
9. Recognize and consider economic impacts of recommendations made
10. Consider the regional differences

Outcomes

The legislation that created the Indiana Lakes Management Work Group charged the Work Group to: "Develop proposed solutions to problems affecting Indiana's lakes." Further, it charged the Work Group with identifying these proposed solutions in reports to the Indiana General Assembly. The following reports were required:

- Interim Report, due July 1, 1998
- Final Report, due December 31, 1999

In addition to these legislatively mandated outcomes, the Work Group developed a web site that Indiana citizens/visitors can use to help them:

- quickly find information on all manner of lake-related issues and problems
- know who to contact for assistance with specific issues and problems
- engender better cooperation/understanding/communication among agencies and the public

This site was still under construction when this report went to press. To learn the web site address, call the DNR Division of Soil Conservation at 317-233-3870.

Process Used for Developing Recommendations

The process of developing, submitting, and approving recommendations was complex, but thorough. After reviewing the issues of concern generated at the 1996 public meetings at Angola, the Work Group separated these issues into the following broad categories: Recreation, Biology, Chemistry, Shorelands, and Watersheds. The Work Group then formed the following 3 subgroups to address these issues:

Recreation Subgroup

Biology/Chemistry/Shorelands Subgroup

Watersheds Subgroup

Work Group members joined the subgroup they were most interested in, and subgroups met during most meetings to work toward developing recommendations. Some meetings were devoted almost entirely to subgroup work.

Subgroups developed recommendations using a process in which they identified, prioritized, and analyzed the issues/problems at hand, and then identified and prioritized potential solutions.

Subgroups then crafted specific recommendations that addressed the various issues/problems. For clarity and consistency, all subgroups developed recommendations using the same format.

Each recommendation was then submitted to the full Work Group in the following approval process:

1. Work Group members received the draft recommendation prior to the next meeting, allowing time for review.
2. At the next meeting, the Work Group discussed the recommendation and either approved it as it was submitted, approved it after making changes, returned it to the subgroup or to an ad hoc committee for further revision, or tabled the recommendation until a later date.
3. If the recommendation was approved by the Work Group at a particular meeting, it was considered *tentatively* approved until the following meeting. This gave members who had not attended the meeting the chance to review what had taken place, and voice any concerns or make any additional changes.
4. If there was no dissent about a tentatively approved

- recommendation from non-attendees at the following meeting, the recommendation was considered approved.
5. If non-attendees raised concerns about the tentatively approved recommendation, the process was repeated (see step 2) at the next meeting.

Originally, recommendations were numbered consecutively, in the order they were submitted to the full Work Group for approval. However, some potential recommendations were dropped, and some were combined with other recommendations, leaving holes in the numbering system. Therefore, after all recommendations had been finalized and approved, they were regrouped according to topic, and renumbered. Thus, the final recommendations in this report are numbered consecutively and listed by category.

If you are interested in tracking the development of a particular recommendation over time by reading the Work Group meeting summaries (Appendix A), you will need to know the original recommendation number. There is a key in Appendix A that lists the original recommendation numbers and the corresponding final recommendation numbers that appear in this report. Use the original recommendation numbers when reviewing the Work Group meeting summaries.

Recommendations

This section contains the final recommendations of the Indiana Lakes Management Work Group.



Recommendation #1

Short Title: Nonpoint Source Pollution Control

Subgroup: Watersheds

**Status: Submitted to Work Group at 4-21-99 meeting
Returned with #6 to BCS and Watersheds Subgroups at 4-21-99 meeting
Resubmitted to Work Group at 8-18-99 meeting
Tentatively approved at 8-18-99 meeting
Resubmitted by ad hoc committee (revised by IDEM) to Work Group at
9-28-99 meeting
Tentatively approved by Work Group at 9-28-99 meeting
Approved by Work Group at 10-26-99 meeting**

Issue/problem Statement:

Nonpoint source (NPS) pollution is material that enters our water resources from widely scattered and diffuse sources, such as runoff from streets and parking lots, farmland, parks, lawns, etc. Point sources, on the other hand, come from a pipe or other definable outlet. The most common sources of NPS pollution affecting lakes are eroded soils, septic systems which are failing, lawns, animal agriculture, pet and wildlife wastes, petroleum and rubber from streets and parking lots, as well as chemical fertilizers and pesticides used on farms, urban areas, golf courses, and similar lands.

Nonpoint sources of nutrients, sediments, and other contaminants have long affected Indiana's lakes and reservoirs. After extensive monitoring of public lakes in Indiana in the early- to mid-1970s, state water quality experts concluded that phosphorus and sediment inputs were accelerating the natural aging process of the state's lakes, thereby shortening their useful lives. This information aided Indiana in becoming one of the first states to enact a ban on the household use of phosphate-containing detergents. Subsequent monitoring of lakes has shown more improvement than degradation with regard to nutrient levels and algal growth. Additionally, many lakes are holding their own in the aging process in spite of increased use and development pressures. However, much remains to be done in controlling NPS problems and addressing the lingering effects of decades of nutrient enrichment, sedimentation, and fecal contamination in Indiana lakes.

Several state and federal agencies provide technical and financial assistance to address NPS problems related to lakes. Among them are the Indiana Department of Environmental

(More)

Recommendation #1 (continued)

Management (IDEM), the Indiana Department of Natural Resources (DNR), Soil and Water Conservation Districts (SWCDs), the Natural Resources Conservation Service (NRCS), and the U.S. Environmental Protection Agency (EPA).

Despite the fact that federal funding from the EPA through IDEM for lake assessment and restoration work has been sporadic, IDEM has continued to support such efforts in one way or another. Recently, IDEM included specific language in the State's draft NPS Management Plan to allow lake and lake watershed efforts to remain eligible for nonpoint-related grant and loan funds, such as the Clean Water Act Section 319 funds. To date, about 15% of the project dollars from IDEM's NPS grants have been spent on efforts having direct or indirect benefit to the state's lakes and reservoirs. Continuation of such efforts is critical both to the State and at the local level.

In addition, the Lake and River Enhancement (LARE) Program within the DNR has made great strides toward addressing lake and watershed degradation issues through evaluation and implementation projects. DNR's work, combined with the efforts of other members of the Indiana Conservation Partnership (ICP), provides technical, as well as financial, assistance to people and efforts at the local level. The ICP is a cooperative venture between the NRCS, DNR's Division of Soil Conservation, and Indiana's 92 SWCDs. By operating through staff and resources in field offices around the state, the ICP is helping at the grass roots level where the greatest water quality improvements and benefits are most often realized.

In order to further support the varied efforts of the ICP and local groups, the Indiana General Assembly passed the Clean Water Indiana (CWI) initiative during the 1999 session. The focus of CWI is to provide resources needed to support nutrient management activities and conservation practices on the land. If adequately funded, this initiative will help address many aspects of the nonpoint source pollution problems facing the state.

In like manner, the NRCS Environmental Quality Incentive Program (EQIP) works to address NPS issues relative to agricultural producers through support of positive, incentive-based actions. As with the other programs, demands on EQIP have exceeded budget allotments by 2.5 times since the program's inception. Support is needed to ensure that this program is funded at a level sufficient to meet user demand.

(More)

Recommendation #1 (continued)

Recommendation:

1. The Indiana Lakes Management Work Group recommends that:
 - a. the federal government fund EQIP at a minimum of \$500 million per year nationally;
 - b. the state government fund CWI at \$10 million per year;
 - c. the state government begin funding the Nonpoint Source Program at IDEM at a minimum of \$1 million per year to enable the program to continue supporting the efforts of the Indiana Clean Lakes Program, as well as lake-related watershed projects;
 - d. the Administration take the necessary steps to make State Revolving Fund (SRF) loans available to address nonpoint source problems in Indiana watersheds—including efforts to protect lakes and reservoirs from upstream sources of nonpoint pollution; clean up NPS-related problems which linger in and affect lakes; and remove or control sediments, nutrients, and other contaminants which could act as a future source of pollution to downstream waters; and
 - e. state agencies utilize the Indiana Conservation Partnership to help farmers, urban dwellers, and others develop plans to manage nutrients, pesticides, and other nonpoint source pollution.

Recommendation #2

Short Title: Development of Lake Eutrophication Standards

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 4-21-99 meeting
Returned to Subgroup at 4-21-99 meeting
Resubmitted to Work Group at 6-14-99 meeting
Tentatively approved (with minor changes) at 6-14-99 meeting
Approved at 7-28-99 meeting

Issue/problem Statement:

The Indiana Department of Environmental Management (IDEM) administers State water quality standards (327 IAC 2) under the State Water Pollution Control Act (IC 13-18). These water quality standards identify legally acceptable ranges or limits for various chemical, physical, and biological properties of water. A number of these parameters apply to lakes. For instance, Indiana has bacteria standards for public freshwater lakes to protect human health during body contact recreation. However, there are no standards protecting Indiana lakes from *eutrophication* (excessive biological productivity caused by additions of inorganic nutrients, organic matter, and silt to lakes). Relationships among transparency, phosphorus and chlorophyll-*a* are well known and have been documented by professional limnologists. While eutrophication standards will not necessarily eliminate the ills of eutrophication, they will provide a basis for maintaining healthy lake functions. Standards can provide a barometer to evaluate the potential consequences of a variety of human actions.

Recommendation:

2. The Indiana Lakes Management Work Group recommends that:

IDEM revise existing water quality standards to include parameters that are indicative of lake eutrophication, to be adopted by the Indiana Water Pollution Control Board (WPCB) beginning in 2000. Furthermore, it is recommended that the WPCB begin to develop new lake eutrophication standards beginning in 2000.

Recommendation #3

Short Title: Motorboat Watercraft Impacts on Lake Ecology

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 4-21-99 meeting
Returned to Subgroup at 4-21-99 meeting for possible combination with #30
Resubmitted to Work Group at 5-19-99 meeting
Returned to Subgroup at 6-14-99 meeting
Resubmitted to Work Group at 7-28-99 meeting (Combined with OLD #28;
OLD #28 was then deleted)
Returned to Subgroup at 7-28-99 meeting
Resubmitted to Work Group at 8-18-99 meeting (Tentatively approved)
Approved at 9-28-99 meeting

Issue/problem Statement:

The littoral zone of a lake or reservoir is that area having water shallow enough to support the growth of rooted aquatic plants. While this area is usually associated with shallow, near-shore areas, it also includes shallow bars away from the shoreline where plants can grow. A diverse, native plant community has important functions for a healthy lake ecosystem. Native plants in the littoral zone provide habitat for fish, aquatic insects and other aquatic organisms; dampen wave energy; stabilize lake sediments; and add essential oxygen to the water.

Motorboat use is a major form of recreation on Indiana's lakes and reservoirs. While this activity brings great enjoyment to boat users, motorboats can create significant negative effects on lake quality. When motorboats operate within or too close to rooted floating-leafed and emergent aquatic plant communities, the growth and health of the plants can be reduced three-fold by turbulence and scouring caused by motorboats and their wakes. Research has shown that weakly rooted plant species are eliminated beneath water ski runs to a depth of 10 feet. In addition, boat propellers can cut plant stems and this has been shown to increase the spread of exotic invasive species such as Eurasian watermilfoil. The Wisconsin Department of Natural Resources recommends limiting boat speeds in water depths up to the maximum rooting zone of aquatic plants (10 - 13 feet in most Indiana lakes.)

Other research has shown that a 50-hp outboard motorboat can resuspend fine clay sediments from lake bottoms to depths of ten feet. Larger motors common on Indiana lakes would likely have effects deeper than 10 feet. Sediment resuspension increases turbidity, decreases water clarity, and liberates sediment phosphorus into the water column that contributes to excessive algal blooms.

(More)

Recommendation #3 (continued)

Current Indiana regulations restrict boat speeds to 10 mph within 200 feet of public lake shorelines. In many shallow lakes, water is less than 10 feet deep beyond the 200-foot protected area and these areas are not protected from problems caused by motorboat turbulence. Reduced speeds in shallow waters will promote safer use of those waters by canoes, sailboards, and anglers. Due to the plowing effect of boats with large drafts, a 10 mph speed may increase rather than decrease the intensity of waves generated by the boat wake. Therefore, minimizing damage to shorelines and other aquatic resources can only be guaranteed by instituting a standard that reduces wake and wash, such as implementing a no-wake or idle speed standard.

Recommendation:

3. The Indiana Lakes Management Work Group recommends that:
 - a. the 10 mph speed limit within 200 feet of lake shorelines be changed to idle speed, as defined in existing IC 14-8-2-129;
 - b. an educational campaign be initiated to inform boaters of the problems associated with sediment resuspension and aquatic plant damage due to motorcraft, including the steps boaters must take to reduce these impacts (the Work Group recommends this information be included in boater education courses conducted by the Department of Natural Resources); and
 - c. boating restrictions be considered under provisions of Recommendation 26a in lake areas that are susceptible to sediment resuspension by motorcraft or where important rooted aquatic plant beds exist.

Recommendation #4

Short Title: Land Application of Sludge

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting
Tentatively approved (with minor changes) at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

Sludge or waste from wastewater treatment plants and from confined animal feeding operations provides fertilizer or soil amenities to agricultural lands. This is a proper use of resources, displaying wise stewardship. However, there have been instances where land application techniques have not been adequately followed and, subsequently, the nutrients from this resource base are not available to increase cropland productivity but rather are wasted in runoff from the land. As part of the runoff, these nutrients end up in receiving rivers, lakes, and streams, where excessive nutrients cause accelerated eutrophication. In 1998, environmental rules for application of municipal and industrial sludges to agricultural lands were revised. Draft rules for livestock wastes were under review in 1999 by the general public before preliminary rules would be considered for adoption by the Indiana Water Pollution Control Board. Enforcement of these rules and regulations is imperative to keep unwanted nutrients from reaching Indiana's waterways and lakes.

Recommendation:

4. The Indiana Lakes Management Work Group recommends that the Indiana Department of Environmental Management's field inspectors continue their aggressive oversight program to ensure that sludge materials are applied to agricultural lands in accordance with applicable federal and state guidance, laws, and regulations. It is recommended that the Indiana Water Pollution Control Board adopt environmental rules for proper application of livestock wastes.

Recommendation #5

Short Title: Bacterial Contamination at Public Bathing Beaches

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 4-21-99 meeting (Returned to Subgroup)
Resubmitted to Work Group for 6-14-99 meeting
Tentatively approved by Work Group at 6-14-99 meeting
Approved at 7-28-99 meeting
Revised and resubmitted at 9-28-99 meeting (Tentatively approved)
Approved at 10-26-99 meeting

Issue/problem Statement:

In general, swimming, water skiing, boating, and other water contact sports at Indiana lakes have been safe for recreation and free from contamination. According to the Indiana Department of Environmental Management's *State of the Environment, 1999* report, 98% of Indiana lakes and reservoirs support full body contact use and full aquatic life support (as opposed to 57% for Indiana's rivers and streams). Throughout Indiana, county health officials conduct routine bacteria tests (fecal coliform or *E. coli*) during the recreation season to determine the presence of bacteria, and they issue warnings in the event of high or abnormal bacteria counts. For example, elevated levels of fecal coliform bacteria were reported at several bathing locations on a particular lake in the summer of 1998. County health officials sampled waters at several locations around the lake to determine the source of the contamination. Results from laboratory analyses indicated that the source of pollution was inconclusive (i.e., both human and non-human bacteria were found in nearly equal proportions). In some DNA tests, wastes from agriculture feed lots (non-human element) were suspected as the source of the contamination, while in other DNA tests, human bacteria were more prevalent, indicating that faulty septic systems were probably the cause of the contamination. As a result of these tests, county health officials declared several of the public bathing areas around the lake to be unsafe for swimming. Primary causes of bacterial pollution at public bathing beaches at Indiana's lakes are leaking septic tanks and runoff from livestock operations.

(More)

Recommendation #5 (continued)

Recommendation:

5. The Indiana Lakes Management Work Group recommends that:
 - a. the Indiana State Department of Health develop the capabilities to perform various methods of testing for source identification of bacteria, including but not limited to, DNA typing and coliphage identification; and
 - b. local health departments, in cooperation with the Indiana State Department of Health, issue full body contact advisories for impaired waters of lakes which exceed water quality standards.

Recommendation #6

Short Title: Trace Pesticide Concentrations in Drinking Water Sources

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 4-21-99 meeting
Returned with #1 to BCS and Watersheds Subgroups at 4-21-99 meeting
Resubmitted to Work Group at 8-18-99 meeting (Tentatively approved)
Approved at 9-28-99 meeting

Issue/problem Statement:

Pesticide runoff is a problem in lakes used for drinking water supply where concentrations exceed U.S. Environmental Protection Agency Maximum Contaminant Levels (MCLs) for safe drinking water. Although few Indiana lakes exceed established MCLs, seasonal values have been measured above the annual average MCL for the herbicide atrazine. Atrazine is a widely used corn herbicide and is very water-soluble. The presence of atrazine in lakes above the MCL also indicates the need to control the transport of other pesticides of health concern into Indiana lakes. Some other pesticides often detected in Indiana waters for which no MCL has been set include: metalochlor, acetochlor, and diazinon. As more information becomes available on health effects of low-level concentrations of chemicals of concern, this problem may decrease or increase in importance. Although most pesticide concentrations in Indiana lakes are not at a level considered to be an acute toxic threat to aquatic life or human health, questions remain about possible health concerns from chronic exposures. Pesticide runoff impacts on ecosystems associated with Indiana lakes are also a concern. Potential behavioral and reproductive influences on various plant and animal species are not fully known. Protection from chemical contaminants including pesticides is needed to help ensure the safety of future drinking water supplies in Indiana lakes.

Recommendation:

6. The Indiana Lakes Management Work Group recommends that:
 - a. runoff control best management practices (BMPs) for pesticides be coordinated and implemented in watersheds of lakes used for public drinking water supplies; and
 - b. economic incentives to implement these best management practices be supplemented with available state funds when federal funds are insufficient or unavailable.

Recommendation #7

Short Title: Algal Toxins

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting (Returned to Subgroup)
Resubmitted to Work Group at 6-14-99 meeting
Tentatively approved (with minor changes) at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

Certain species of commonly occurring, blue-green algae (*Cyanophyta*) naturally produce poisons that are stored within their cells. Some of the toxins produced are known to attack the liver (hepatotoxins) or the nervous system (neurotoxins) of mammals. The toxins are released into the water when the algae cells rupture or die. There are cases on record where dogs and livestock have died after drinking water contaminated with algal toxins. Relatively few incidents of human poisoning have been confirmed, although thirty dialysis patients in Argentina died after exposure to contaminated water. Swimming in water containing algal toxins more commonly causes irritated eyes and skin. Up to 50% of blue-green algae blooms may contain toxins. Blooms of toxic algae are associated with high concentrations of the nutrient phosphorus. Because there is no obvious way to tell if a particular bloom is toxic, samples have to be analyzed in a laboratory. Conventional water treatment and boiling are not thought to remove blue-green algal toxins from drinking water. The states of Oregon and Washington are considering the establishment of a drinking water standard for blue-green algal toxins. Health Canada has proposed a guideline of 0.0015 mg/l for drinking water supplies in that country. There is no routine testing nor standards for algal toxins in Indiana drinking or recreational waters.

Recommendation:

7. The Indiana Lakes Management Work Group recommends that:
 - a. the Indiana State Department of Health initiate a process to evaluate the risk of blue-green algal toxins to citizens who recreate in or drink water from lakes;
 - b. public water supplies initiate a routine screening of their surface source waters for algal toxins during the peak periods of algae growth; and
 - c. the Department of Health investigate the advisability of developing algal toxin standards for drinking water and body-contact recreation. (If developed, such standards should be implemented through state regulation.)

Recommendation #8

Short Title: Health and Environmental Risks due to Pastured Livestock

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting but not considered
Considered and returned to Subgroup at 5-19-99 meeting
Resubmitted to Work Group at 6-14-99 meeting
Tentatively approved at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

Many livestock operations exist throughout the state that are not large enough to be subject to the Confined Animal Feeding Operations (CAFO) guidelines, but may still pose a risk to human health and environmental quality. The Indiana Department of Environmental Management (IDEM) has the authority to require best management practices that would prevent livestock from violating state water quality standards adopted under IC 13-18-4 in public waters (lakes and streams). Lower drainage maintenance costs and enhanced water quality benefits would also result from implementation of best management practices that reduce soil erosion and turbidity by fencing livestock out of streams and lakes. The Indiana Drainage Code requires county surveyors to remove livestock from streams if they are causing channel damage. In IC 36-9-27- 46(a), the law states that "When a regulated drain is obstructed or damaged by... pasturing livestock, or in any other way, the county surveyor shall immediately remove the obstruction and repair any damage." Several state and federal government programs offer technical and financial assistance to farmers for implementing best management practices that would reduce water quality impacts from pastured livestock. For more information on cost share funding, landowners should contact the county Soil and Water Conservation District office. The Natural Resources Conservation Service (NRCS) field office technical guide provides information on design of exclusionary fencing and off-stream watering facilities.

Recommendation:

8. The Indiana Lakes Management Work Group recommends that:
 - a. county drainage boards and the IDEM clarify or establish and exercise their authority to prevent livestock from violating State Water Quality Standards in all public waters (lakes and streams); and
 - b. the U.S. Department of Agriculture NRCS, Clean Water Indiana, and IDEM's Nonpoint Source Program promote the allocation of cost-sharing monies to livestock producers for installation of fencing to limit access along water bodies, development of stable watering access points, innovative watering systems, etc.

Recommendation #9

Short Title: Pathogen Contamination from Confined Feeding Operations

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting
Tentatively approved at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

Human health can be adversely affected by pathogenic pollutants (e.g., Cryptosporidium) emanating from livestock feeding operations. In certain locations, and particularly if located near lakes, these livestock operations can create unhealthy conditions that require safeguards to preclude contamination from pathogens.

The Indiana Department of Environmental Management's (IDEM) field inspectors should work closely with county health sanitarians to ensure that existing livestock feeding operations are managed properly and that liquid wastes are disposed of properly. The Natural Resources Conservation Service (NRCS) offers design specifications to meet water quality standards and better on-site treatment is encouraged to achieve these anticipated results. In addition, limited cost sharing monies are normally available through the USDA's Environmental Quality Incentive Program, the Clean Water Indiana program, and IDEM's Nonpoint Source Program. The Indiana Drainage Handbook and the NRCS field office technical guide are good references for designing best management practices, and soil and water conservation districts promote local demonstration projects.

Recommendation:

9. The Indiana Lakes Management Work Group recommends that existing federal, state, and local governmental programs mentioned above be strengthened to ensure that best management practices are encouraged at/near all livestock operations. Individual farmland owners are encouraged to install on-site collection systems for proper collection and disposal of animal wastes and/or to implement best management practices for surface runoff in planting filter strips and grassed waterways.

Recommendation #10

Short Title: Chemical Contamination of Fish in Indiana Lakes

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting
Resubmitted to Work Group at 6-14-99 meeting (Returned to Subgroup)
Combined with OLD #41 (OLD #41 was then deleted) and resubmitted to Work
Group at 7-28-99 meeting
Tentatively approved at 8-18-99 meeting
Revised and resubmitted to Work Group at 9-28-99 meeting
Tentatively approved at 9-28-99 meeting
Approved at 10-26-99 meeting**

Issue/problem Statement:

Fish are an excellent food choice because they are high in quality protein and low in saturated fat. However, fish can take up a variety of contaminants from the environment in which they live, and in turn, pass those chemicals along to those who consume them. Fortunately, humans excrete most contaminants over time, but minimizing exposure to them can help reduce their effects. Over-consumption of contaminated fish can cause contaminant levels to build up and pose health risks to people, especially children and pregnant women.

Two of the most prevalent contaminants in fish caught in Indiana are polychlorinated biphenyls (PCBs) and mercury. Pesticides such as DDT and chlordane are also persistent in the Indiana environment and have been detected in fish tissue samples. While pesticides are of concern, they are not dominant elements of Indiana's Fish Consumption Advisory (FCA), which focuses on PCBs and mercury.

PCBs do not occur naturally in the environment and contaminate only a handful of assessed lakes in Indiana. The contaminants are the result of industrial processes and can enter the air as solid or liquid aerosols or vapor, stick to soil particles, and occasionally dissolve in water. PCBs cause changes in human blood and liver, immune problems in adults, and developmental problems in children. The carcinogenic effects of PCBs on humans is unknown. PCBs tend to accumulate in the fat tissues of fish, so proper cleaning and cooking can help limit the intake of PCBs.

Mercury, on the other hand, does occur naturally in the environment in several forms. Mercury also enters the atmosphere via factory emissions and the burning of coal and garbage. Large amounts of mercury in the body can harm the nervous system. Because mercury accumulates in all parts of a fish, there are no methods of cleaning or cooking which can lower the amount of mercury in meat that is consumed. The best method of reducing the intake of mercury is to make

(More)

Recommendation #10 (continued)

informed decisions about where to fish, what fish to eat, how much and how often. Such information can be found in the Indiana FCA.

Since 1972, the Indiana Interagency Workgroup for FCAs (consisting of the Indiana Department of Environmental Management (IDEM), the Indiana Department of Natural Resources, and the Indiana State Department of Health) has cooperated in issuing an annual advisory based on the most current fish monitoring data. The Advisory is not meant to discourage people from fishing in Indiana, but rather to help minimize the risks involved when consuming fish caught in Indiana. Carp have historically been the most prevalent species appearing in the advisory, due to the fact that carp are caught at practically every sampling site and that carp and other bottom-feeding fish are among the most consumed species of fish in Indiana. There has never been a legal mandate to monitor fish tissue or issue an advisory in the state. The agencies involved carry out this task without any federal compensation, and do so entirely as a service in the interest of public health and welfare.

Advisories have been issued on rivers in Indiana since 1972. The first sampling event on lakes did not occur until 1986. Only since 1996, however, have lakes been sampled with greater regularity and frequency. Common complaints about Indiana's advisories include a desire for more information on lakes and lake species, the fact that many people don't realize the advisories exist, that bait stores and license vendors shy away from posting material which appears derogatory to fishing, and that the media often use scare tactics to get the message out. Advisories are issued to provide recommendations to the public. They are not meant to be construed as a restriction or ban of any sort.

Recommendation:

10. The Indiana Lakes Management Work Group recommends that:

- a. IDEM continue sampling fish tissue from lakes each year, that a greater percentage of their sites be lakes not previously sampled, and that species sampled reflect those of interest to lake anglers;
- b. IDEM increase the efforts of its Mercury Awareness Programs to educate the public and to collect for proper disposal, mercury that might otherwise end up in the environment;
- c. IDEM work to clean-up sites contaminated by PCB wastes;

(More)

Recommendation #10 (continued)

- d. the Indiana Interagency Workgroup for FCAs be more proactive and creative in the use of media and methods to continue getting accurate information out to the public. Suggestions include, but are not limited to, the use of posters, billboards, commercials, magazine ads, and the addition of an FCA information number printed on the bottom of each Indiana fishing license;
- e. the FCA Workgroup consider issuing “clean bill of health” advisories for species and/or locations showing little risk of contamination from PCB, mercury, or other chemicals;
- f. the FCA Workgroup focus adequate attention on developing risk assessment models for various pesticides of concern in Indiana; and
- g. the Administration support, to the fullest extent possible, the funds requested by the three agencies for fulfilling their FCA-related tasks.

Recommendation #11

Short Title: Wastewater Treatment Plant Discharges Into Indiana Lakes

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting
Returned to Subgroup at 6-14-99 meeting
Resubmitted to Work Group at 7-28-99 meeting
Tentatively approved at 8-18-99 meeting
Approved at 9-28-99 meeting**

Issue/problem Statement:

Concern has been expressed about possible ill effects of wastewater treatment plant discharges on lake water quality, and ultimately, on human health. Concerns range from the excessive input of nutrients and oxygen-demanding compounds, to releases of toxic material and pathogens. Such concerns for the health and well-being of our lakes, as well as ourselves, is understandable in light of recent problems around the nation and state with *E. coli*, *Cryptosporidium*, and other microorganisms.

For the past 25 years, the Indiana Department of Environmental Management's (IDEM) National Pollutant Discharge Elimination System (NPDES) Program has played a critical role in controlling the output of sewage and waste into Indiana's surface and ground waters. Such control comes about in the form of:

- a. discharge limits placed on facilities through the NPDES permit process,
- b. involvement of the public during the permit application and renewal process,
- c. self-monitoring and monthly reporting by facilities,
- d. inspections and compliance monitoring,
- e. operator assistance, training, and certification programs, and
- f. enforcement actions against facilities which do not comply with the above requirements.

Enforcement actions can take the form of sewer bans on facilities whose inflows are approaching the design capacity of the plants. Enforcement can also lead to criminal or civil penalties including monetary fines and/or incarceration. While not foolproof, this program has resulted in great improvement from a time when rivers in the U.S. caught fire and dysentery and cholera were common.

Municipal dischargers are divided into two categories. Minor dischargers are those facilities discharging less than 1 million gallons per day (mgd) of effluent. Majors are those which discharge 1 mgd or more into the waters of the state. As of 1999, there was only one major

(More)

Recommendation #11 (continued)

discharger to an Indiana lake. However, there are numerous minor dischargers to lakes. These include campgrounds, parks, mobile home parks, and other facilities. Regardless of size, discharge limits for lake dischargers (327 IAC 5-10-4) and for those in the Great Lakes drainage (327 IAC 2-1.5) are among the most stringent in the state. In Indiana, lake dischargers include those facilities piping their effluent directly into or within two miles upstream of a lake or reservoir. Most NPDES permits issued for discharging facilities are on file with the local health departments.

The quality of the receiving waters can be affected when the actual treatment process is bypassed or when combined sewer overflows (CSOs) are discharging. Such escape routes were, at one time, designed into sewer systems to accommodate high flow or upset conditions, such as during a heavy rainstorm. Upsets can occur with even greater frequency as treatment plants and their equipment age and become obsolete. Lack of inspections was a common problem in the past for minor dischargers. IDEM has now made a commitment to the U.S. Environmental Protection Agency and to citizens of the state to visit and inspect every NPDES-permitted facility at least once per year; including the minors. Inspections will also continue to be made on an as-needed basis.

Recommendation:

11. The Indiana Lakes Management Work Group recommends that:

- a. IDEM's field inspectors continue their annual visits to both major and minor dischargers and that they respond promptly to serious complaints about problem discharges to lakes (Inspectors are also encouraged to begin communicating with lake managers and associations regarding inspection results, as appropriate);
- b. representatives from lake associations acquaint themselves with the IDEM inspector having jurisdiction over the discharges into their lake(s) and that they communicate their concerns or problems to the inspectors in a timely manner;
- c. local governments and entities make the necessary investments to properly maintain treatment facilities in operating order and to hire, train, and retain qualified personnel to run their plants. They are encouraged to utilize IDEM's low-interest State Revolving Fund (SRF) to maintain or upgrade their plants;
- d. permitted facilities commit themselves to the CSO control requirements outlined in their permits, in accordance with Indiana's CSO Strategy; and
- e. IDEM's Operator Assistance and Training Section be diligent in providing help to those minor dischargers, where needed.

Recommendation #12

Short Title: Threats from Petroleum Compounds and Other Volatile Organic Chemicals

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting
Returned to Subgroup at 6-14-99 meeting
Resubmitted to Work Group at 7-28-99 meeting
Tentatively approved at 9-28-99 meeting
Approved at 10-26-99 meeting**

Issue/problem Statement:

Petroleum compounds and other volatile organic chemicals can pose serious threats to Indiana lakes and to the health of those who enjoy use of the lakes. Significant potential for petroleum contamination of lakes from gasoline, diesel fuel, motor oil, waste oil and solvents, and waste tires threaten Indiana aquatic lake life, recreational value, and human health. Measures to minimize the potential for petroleum spills that could impact the lakes need to be supported. The potential exists for significant damage to occur from motorized vehicle fuel storage and transportation tanker spills in addition to major pipeline disasters or illegal dumping. Coordination of contingency planning and communication are needed to minimize potential impacts of major spills. Existing education and prevention planning measures to address this problem need to be strengthened.

Recommendation:

12. The Indiana Lakes Management Work Group recommends that:

- a. education on the Indiana spill rule, runoff control, fueling practices, and emergency telephone numbers be emphasized and promoted further by the Indiana Department of Environmental Management around Indiana lakes; and
- b. lake and watershed management plans be encouraged to include emergency response resources and runoff control strategies identified by communication and coordination with local emergency planning committees.

Recommendation # 13

Short Title: Septic System Condition added to Real Estate Disclosure Process

Subgroup: Watersheds

Status: Submitted to Work Group at 3-24-99 meeting
Tentatively approved at 4-21-99 meeting
Approved at 5-19-99 meeting

Issue/problem Statement:

Septic systems are the most common form of wastewater disposal in the developed areas around lakes. However, approximately 50% of the soils in Indiana are not suited for septic systems. Some have high water tables, some are too sandy and permeable, and others are too steep or rocky. In addition, many septic systems are very old and have surpassed their maximum useful life span.

People who own property with failing septic systems have been known to try to sell the property without informing the potential buyers of the problems. The new owners are then faced with expensive repairs or ignoring the problem.

Sellers with property that makes use of a septic system should be required to disclose the year-round operating condition of the system before a sale is closed.

Recommendation:

13. The Indiana Lakes Management Work Group recommends that:

- a. septic system design and operating condition be added to the real estate disclosure process; and
- b. septic system inspections be required prior to the transfer of property.

Recommendation #14

Short Title: Separation of Combined Sewer Systems (CSOs)

Subgroup: Watersheds

Status: Submitted to Work Group at 4-21-99 meeting
Discussed by Subgroup and returned to Subgroup at 5-19-99 meeting
Resubmitted to Work Group at 7-28-99 meeting (but not addressed)
Edited by Subgroup and resubmitted to Work Group at 8-18-99 meeting
Tentatively approved at 8-18-99 meeting
Approved at 9-28-99 meeting

Issue/problem Statement:

Currently (1999), 106 Indiana communities have combined sewer collection systems that are designed and constructed to convey both sanitary wastewaters and stormwater to a publicly owned treatment works (POTW) for treatment. During precipitation events or snow melt, runoff enters the collection system and in many instances exceeds the design capacity of the pipes. Under these circumstances, the excess wastewater (which contains approximately 20% sewage and 80% stormwater) overflows at designed relief points and is discharged directly into waters of the state. Combined sewer overflows (CSOs) are designated as point source discharges under the Clean Water Act and Indiana rules, and are prohibited from causing or contributing to violations of water quality standards or prohibiting the attainment of designated uses of the water body.

Recommendation:

14. The Indiana Lakes Management Work Group recommends that:

- a. the Indiana Department of Environmental Management (IDEM) and other appropriate agencies implement policies that stress the need for separation of combined sewer systems;
- b. IDEM and other appropriate agencies provide funding for repairs of existing systems to the communities that have a workable plan to meet water quality standards; and
- c. the commissioner of IDEM ensures proper staffing of the National Pollutant Discharge Elimination System permitting programs, to include permit issuance, CSO strategy implementation, and stormwater program implementation.

Recommendation #15

Short Title: On-Site Septic Systems

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting
Returned to Subgroup at 4-21-99 meeting
Resubmitted to Work Group at 8-18-99 meeting
Tentatively approved at 8-18-99 meeting
Approved at 9-28-99 meeting**

Issue/problem Statement:

Septic wastewater disposal systems have been in use since most homes have been built around Indiana's lakes. In general, they have served intended purposes well over the years, but when not properly maintained, they become a serious health hazard to the individual owner as well as to the lake community as a whole. Many property owners do not adequately maintain their septic waste disposal systems and if allowed to fail, the system may discharge inadequately-treated sewage into both surface and groundwaters. According to a survey conducted by Purdue University, in cooperation with the county health departments and the Indiana State Department of Health, "between 25 and 70 percent of existing septic systems in Indiana are estimated to be in some type of failure. New technologies are becoming available which should be utilized in cluster developments." [Source: Final Report of the Hoosier Farmland Preservation Task Force]. Recently, several lake associations have installed public wastewater collection and treatment facilities or have made arrangements to transmit the collected wastewater to an existing wastewater treatment plant. This action is permanent, reliable, and dependable, but more expensive to the lake property owner. Additionally, it reduces the human health risk of contaminating individual drinking water well supplies.

Recommendation:

15. The Indiana Lakes Management Work Group recommends that:
 - a. centralized wastewater collection and treatment be the recommended course of action when alternatives for repair or replacement of aging, failing septic systems are exhausted. [Only under certain conditions should on-site septic systems be permitted at lake front properties: 1) each on-site system must meet Indiana State Department of Health rules for site and soil conditions, system selection, design, and installation; 2) additional treatment, such as constructed wetlands, re-circulating sand filter, etc., should be encouraged for systems around lakes; and 3) conservation planning be incorporated into the overall design of riparian developments.]

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Recommendation #15 (continued)

- b. lake area septic systems be required to undergo periodic testing and/or certification by local health departments to guarantee adequate performance as an integral part of an operations and maintenance program.
- c. the Indiana legislature provide the necessary technical and financial resources to the state Department of Health and to local health departments to implement Recommendation 15b.

Recommendation #16

Short Title: Enforcement of Erosion Control at Developing Sites

Subgroup: Watersheds

Status: Submitted to Work Group at 3-24-99 meeting
Tentatively approved (with edits to Issue Statement) at 3-24-99 meeting
Approved at 4-21-99 meeting
Change made to short title at 10-26-99 meeting

Issue/problem Statement:

Soil erosion and sedimentation related to construction sites are major concerns around Indiana's lakes. Uncontrolled erosion results in sediment deposits in lakes which hamper use of the resource. Indiana Code (327 IAC 15-5) states (in part): "The purpose of this rule is to reduce pollutants, principally sediment as a result of soil erosion, in storm water discharges into surface waters of the state from sites where construction activity disturbs five (5) acres or more of the site." This regulation, commonly known as Rule 5, is administered and enforced by the Indiana Department of Environmental Management, with implementation assistance from Soil and Water Conservation Districts and the Indiana Department of Natural Resources, Division of Soil Conservation. Rule 5 requires preparation of erosion and sediment control plans and implementation of those plans by developers. The limited amount of agency staff currently available to provide technical assistance and to evaluate program compliance limits the effectiveness of the effort. In addition, even in cases of extreme on-site violations, field personnel are not currently authorized to impose "stop-action" findings in the field; that is, they cannot force violators of the regulation to cease working until the situation is resolved, without first going through a lengthy enforcement process.

Recommendation:

16. The Indiana Lakes Management Work Group recommends that the Indiana General Assembly enact legislation to:
 - a. strengthen enforcement of Rule 5, including stop action capability at the local level;
 - b. increase funding to implement and enforce Rule 5 and provide education; and
 - c. encourage counties to adopt erosion and sediment control ordinances.

Recommendation #17

Short Title: Increased Sedimentation Associated with Legal Drains

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 4-21-99 meeting
Returned to Subgroup at 6-14-99 meeting
Resubmitted to Work Group at 7-28-99 meeting (new title)
Edited by Subgroup and resubmitted at 8-18-99 meeting
Tentatively approved at 8-18-98 meeting
Approved at 9-28-99 meeting

Issue/problem Statement:

The 1965 Indiana Drainage Code (IC 36-9-27) provides for the maintenance of legal surface water drains to increase surface drainage and prevent flooding. However, an unintended consequence of draining floodwater as rapidly as possible through channelized surface drains is an increase in downstream flooding, water velocities, and rapid transport of sediments and associated nutrients to downstream waters. This has had negative consequences in natural lakes, which often receive plumes of sediment-laden water from legal drains.

The concern for water movement should be balanced with the use of environmentally sound practices. Use of appropriate erosion control methods and careful timing of maintenance or construction activities can reduce the cost of drainage. For example, fall and winter projects can leave ditch banks without vegetation for several months, reversing the benefits of maintenance by increasing erosion and sedimentation in the same drain. In contrast, meanders, drop structures, and streambank vegetation can reduce the velocity and erosion potential of drainage waters and are among the important components of sound drainage practices.

In 1996, the *Indiana Drainage Handbook: An Administrative and Technical Guide for Activities within Indiana Streams and Ditches* was prepared in accordance with P.L. 329-1995. This handbook facilitates appropriate planning and implementation of drainage activities by (1) explaining federal, state, and local laws and regulations affecting drainage activities; (2) describing best management practices for drain maintenance and construction that have a minimum of adverse environmental impact; and (3) explaining procedures for timely access to drainage-related personnel in the agencies. Enhanced working relationships between county surveyors, state agencies, and the Soil and Water Conservation Districts would ensure optimum design and implementation of drainage activities related to control of soil erosion and nutrient runoff, in addition to other aspects of natural resource protection.

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Recommendation #17 (continued)

Portions of the Indiana Drainage Code may need revision to address current environmental and maintenance needs. For example, the Code states that “Trees, shrubs and woody vegetation may not be planted in the right-of-way (75 ft on either side) without the written consent of the board.” (IC 36-9-27-33). This requirement allows access for drain maintenance, but also places a burden on adjacent landowners who must individually initiate the process of formally petitioning the drainage board in order to install conservation practices that improve drainage by stabilizing the streambank, providing retention of pollutants, and benefitting stream habitat.

Recommendation:

17. The Indiana Lakes Management Work Group recommends that:

- a. drainage boards should implement all possible best management practices as indicated in the *Indiana Drainage Handbook*; and
- b. the Water Resources Interim Study Committee should develop and implement a process for revising and updating the 1965 Indiana Drainage Code (IC 36-9-27). Particular aspects that need revision include, but are not limited to the following:
 - (1) Elevate the importance of preventing the delivery of nonpoint source pollutants to downstream waters through legal drains.
 - (2) Allow ditch maintenance assessments to be used to cost-share preventative measures such as streambank stabilization, riparian vegetation, and stable livestock access and stream crossings.
 - (3) Require drainage boards to develop a master plan (based on sound watershed management practices and with input from landowners) for each drain that proactively identifies sections of stream where landowners can restore protective riparian vegetation along stream sections that are never accessed for drain maintenance.
 - (4) Emphasize the importance of environmental considerations by the Drainage Board as part of their review of ditch construction and maintenance activities.

Recommendation #18

Short Title: Use of Lake and River Enhancement (LARE) Funds for Sediment Removal from Lakes and Inlets

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 10-26-99 meeting
Bill Jones brought a revised version to 10-26-99 meeting (Tentatively approved)
Approved at 11-18-99 meeting**

Issue/problem Statement:

The accumulation of sediments in lakes and their inlets is one of the most significant types of nonpoint source pollution in Indiana. The sources of these sediments include soil eroded from construction sites, agricultural fields, streambanks, and other land uses where the soil surface is exposed to the erosive forces of water. The energy of flowing water can suspend and carry soil material downstream into lakes where it ultimately settle out. This process often forms deltas of accumulated sediment at the point where these inlets enter a lake.

Sediment accumulation may decrease the lake volume, interfere with navigation, and provide areas for additional growth of rooted aquatic plants. While the best and most cost-effective solution to this problem is to prevent the erosion of these soils in the first place, on occasion it becomes necessary to remove the accumulated sediments from the lake itself.

Sediment removal from lakes can be accomplished by hydraulic dredging, mechanical dredging, and by lake dewatering followed by excavation. These are costly and disruptive processes. For example, in 1998 and 1999, dredging at Shipshewana Lake removed 227,000 cubic yards of material and cost nearly \$1.6 million. In 1999, dredging 1.25 million cubic yards from lakes Shafer and Freeman was projected to cost \$5.8 million. Neither of these totals includes costs for engineering design, land acquisition, disposal, or monitoring—which for Lake Shafer is expected to cost an additional \$2.3 million. Large-scale dredging projects such as these can best be funded from legislative special funds or the Build Indiana Fund (lottery proceeds).

Sediment removal is not a permanent solution. Sound land use practices must be implemented in the watershed prior to dredging to insure that additional sediments do not accumulate in the lake following dredging. This requires implementation of a comprehensive watershed management plan.

Because extensive lakebed dredging can be very expensive, and because there is a severe limitation on funds available through the LARE program, the program currently does not fund extensive dredging projects. However, limited dredging of lake inlets affected by delivery of

(More)

Recommendation #18 (continued)

eroded soil from watersheds could be an effective use of LARE funds providing that: a) a watershed management plan is in place, b) the dredging is a one-time project (not routine or annual dredging), and c) there is a cap on total LARE funds available for dredging and on funds available for specific projects.

Recommendation:

18. The Indiana Lakes Management Work Group recommends that the State Soil Conservation Board develop criteria/policies for use of LARE money for limited dredging projects in public lakes, and decide upon a reasonable annual expenditure for such dredging projects.

Recommendation #19

Short Title: Improving the Coordination of all Water Resource Permitting Activities

Subgroup: Watersheds

**Status: Submitted to Work Group at 3-24-99 meeting (Returned to Subgroup)
Resubmitted to Work Group at 4-21-99 meeting (Returned to Subgroup)
Resubmitted to Work Group at 6-14-99 meeting
Tentatively approved (with changes) at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

The current process for obtaining various water resource-related permits is confusing. Contacts with several agencies and individuals within agencies are often required, including the Indiana Department of Natural Resources (DNR), the Indiana Department of Environmental Management (IDEM), the U.S. Army Corps of Engineers (ACOE), and the U.S. Environmental Protection Agency (EPA). Statutes related to lake construction activities that DNR administers include the Lake Preservation Act (IC 14-26-2) and associated administrative code on lake construction activities (312 IAC 11), Lowering of Ten Acre Lakes Act, also known as the "Ditch" Act (IC 14-26-5), Flood Control Act (IC 14-28-1) and associated administrative code on flood hazard areas (310 IAC 6-1), Navigable Waterways Act (IC 14-29-1) and associated administrative rules (312 IAC 6), Sand and Gravel Permits Act (IC 14-29-3), and Construction of Channels Act (IC 14-29-4). Statutes related to lake construction activities that IDEM administers include State Water Quality Standards (327 IAC 2), Section 401 of the Federal Clean Water Act (33 USC 1341) - Water Quality Certification (327 IAC 2 and 327 IAC 5) and Storm Water Runoff Associated with Construction Activities, or "Rule 5" (327 IAC 15-5). Statutes related to lake construction activities that ACOE and EPA administer include Section 404 of the Federal Clean Water Act. The Corps of Engineers also administers a navigable waters permit program under Section 10 of the Rivers and Harbors Act. Reducing the duplication and confusion that results from this collection of laws, regulations, and agencies would release financial and time commitments for other lake and watershed improvement activities.

Recommendation:

19. The Indiana Lakes Management Work Group recommends that the state of Indiana:
 - a. develop and implement a joint application and single point of contact for submitting permit applications for construction activities related to water resources under the jurisdiction of the DNR, IDEM, and the ACOE;

(More)

Recommendation #19 (continued)

- b. develop and implement statutory and regulatory opportunities to reduce or eliminate duplicate public notice requirements that currently exist between DNR, IDEM, and the ACOE;
- c. develop and implement statutory opportunities to increase the effectiveness of public hearings by ensuring an efficient and appropriate response to timely requests for hearings under the jurisdiction of the DNR and IDEM; and
- d. provide DNR and IDEM with adequate resources to efficiently manage the permitting process related to all water-related construction activities.

Recommendation #20

Short Title: Increased Enforcement of Lakes-related Laws

Subgroup: Recreation

Status: Submitted to Work Group at 3-24-99 meeting
Returned to Subgroup at 3-24-99 meeting
Edited by Subgroup and resubmitted to Work Group at 4-21-99 meeting
Revised version tentatively approved at 4-21-99 meeting
Approved at 5-19-99 meeting

Issue/problem Statement:

During the Tri-State University meetings in 1996 that led to the formation of the Lakes Management Work Group, law enforcement was the second highest ranked concern of public freshwater lake users. The view was that more enforcement presence on the water was a significant priority. The greatest support was for additional traditional conservation officers; however, there was also support for the use of other types of enforcement officers as an alternative, (i.e., reserve conservation officers or officers from sheriff reserves).

Recommendation:

20. The Indiana Lakes Management Work Group recommends that the Indiana DNR:
 - a. over the next 4 years, increase the number of full-time conservation officers in areas of Indiana that have a concentration of public lakes by a minimum of 25%; and
 - b. provide funding to be directed to the Law Enforcement Division of DNR to be utilized on waterway enforcement.

Recommendation #21

Short Title: Regulation of Temporary and Permanent Structures on Public Freshwater Lakes

Subgroup: Recreation

**Status: Submitted to Work Group at 8-18-99 meeting (Tentatively approved)
Approved at 9-28-99 meeting**

Issue/problem Statement:

On October 16, 1997, the Court of Appeals of Indiana ruled that the Indiana Department of Natural Resources (DNR) has no statutory authority under IC 13-2-11.1-5 (Lakes Preservation Act) to require permits for the seasonal installation of piers or other structures that are of a temporary nature, so long as the installation method has minimal impact on the bed of a lake.

Although there are other areas of law that suggest DNR has the authority to regulate temporary structures in public freshwater lakes, the authority is not definitive and is cumbersome to apply.

The result of this condition of law is that DNR is unable to effectively manage public freshwater lakes in the full spirit of “public trust” as mandated by law. Additionally, the ability of public freshwater lakes users, property owners, and local governments to resolve disputes short of expensive court battles is unrealistically limited.

Structures that are considered temporary, and have “de minimis” impact on the lake bed are left to uncontrolled proliferation. The result is loss of public usage of areas within 150 feet of shore, an increase in riparian owner disputes, and environmental harm to the lakes.

DNR has attempted to manage this problem through agency rule-making authority. This process has not adequately dealt with the problem, and clear authority must be re-established by the legislature to protect Indiana’s public freshwater lakes for property owners, current users, and future stakeholders.

Recommendation:

21. The Indiana Lakes Management Work Group recommends that the Indiana General Assembly amend the public freshwater lake law to add a new section that reads as follows:

(More)

Recommendation #21 (continued)

IC 14-26-2-5.5. The Commission shall adopt rules under IC 14-10-2-4 to assist in the administration of this chapter. The rules must, as a minimum, do the following:

- (1) Provide objective standards for licensing the placement of any temporary or permanent structure or material, or the extraction of material, over, along, or within the shoreline or waterline. These standards shall exempt any class of activities from licensing where the Commission finds the class is unlikely to pose more than a minimal potential for harm to the public rights or public trust as described in 14-26-2-5.
- (2) Establish a process under IC 4-21.5 for the mediation of a dispute among riparian owners, or by a riparian owner against the department, relative to the usage of an area over, along, or within the shoreline or waterline for a matter within the jurisdiction of this chapter. If after a good faith effort mediation under this subdivision fails to achieve a settlement, the department shall make a determination of the dispute. A person affected by the determination may seek administrative review by the Commission.

Recommendation #22

Short Title: Statutory Authority Pertaining to Lakes

Subgroup: Recreation

**Status: Submitted to Work Group at 9-28-99 meeting
Tentatively approved (with minor edits) at 10-26-99 meeting
Approved at 11-18-99 meeting**

Issue/problem Statement:

Myriad statutes are currently in place to provide for the protection and regulation of Indiana's lakes. However, many of these statutes are scattered throughout the Indiana Code, lack specific definitions, are often narrow in scope, affect or are administered in inconsistent ways by various agencies, and are ambiguous. For example, a lake of natural glacial origin can be a "public freshwater lake" but may be privately owned. The single criterion of acquiescence to access by the public is insufficient in determining legal status of many lakes and has resulted in the loss of potential public resources to private individuals through court rulings. Statutes are unclear regarding where an inlet stream ends and a lake begins. There are also questions as to whether specific statutory authority applies to all lakes, manmade or natural, regardless of acreage. Some statutes designed to protect the same resources (e.g., botanical resources) may rest within the Lakes Preservation Act, while others are found in the Fish and Wildlife Code. Consequently, a large amount of uncertainty exists in the minds of agency managers and the public regarding legal authority over lake management issues.

Recommendation:

22. The Indiana Lakes Management Work Group recommends that:

- a. the legal authority to protect and manage Indiana's lakes be periodically reviewed by lake management agencies to identify specific sections of Indiana Code needed for inclusion or modification;
- b. legal definitions be clarified where necessary to improve implementation and enforcement of lake-related statutes and regulations; and
- c. the DNR develop a booklet and web site that outline the jurisdiction and location of statutes and regulations applying to lake management.

Recommendation #23

Short Title: Revised Boating Regulations

Subgroup: Recreation

**Status: Submitted to Work Group at 3-24-99 meeting (Tentatively approved)
Approved at 4-21-99 meeting**

Issue/problem Statement:

A clear message has been received from the public that a plethora of new boating laws is not desirable. What is wanted is fine-tuning of the existing laws, plugging loopholes, and more enforcement of the existing statutes.

Recommendation:

23. The Indiana Lakes Management Work Group recommends that:

- a. a maximum decibel level for boat noise as measured by the Society of Automotive Engineers be established (a rating of 85 dBA @ 50' or 86 dBA by use of any method is recommended);
- b. a written boat driver's license test for certification of Indiana residents be required (a boat operator's endorsement to be shown on the operator's license);
- c. the Bureau of Motor Vehicles and the Natural Resources Commission comply with the existing statute to establish point values for moving violations in watercraft, to be applied against the driver's licenses of persons convicted of said violations (IC 14-15-11-13); and
- d. Indiana's current Personal Flotation Device equipment requirement be updated to the national standard recommended by the United States Coast Guard:

Current language: (b) all boats must be equipped with at least one (1) life preserver, ring buoy, life jacket or buoyant cushion, of a make or type approved by the United States Coast Guard, for each individual on board.

(More)

Recommendation #23 (continued)

Proposed language: (b) No person may use a watercraft unless one PFD of the following types is on board for each person:

- (1) Type I PFD;
- (2) Type II PFD; or
- (3) Type III PFD

(c) No person may use a watercraft 16 feet or more in length, unless one Type IV PFD is on board in addition to the total number of PFD's required in paragraph (b) of this section.

Recommendation #24

Short Title: Increased Public Access to Lakes

Subgroup: Recreation

**Status: Submitted to Work Group at 3-24-99 meeting (Returned to Subgroup)
Revised by Subgroup and resubmitted to Work Group at 4-21-99 meeting
Revised version tentatively approved at 4-21-99 meeting
Approved at 5-19-99 meeting**

Issue/problem Statement:

Many people have expressed concerns about the impacts of heavy lake use, including damage to lakes' natural resources, property damage, safety concerns, and overcrowding. These concerns are legitimate and are being addressed in many ways by the Lakes Management Work Group. Restricting public access to lakes would be one way to address these impacts. In general, the Work Group feels that access to public freshwater lakes should not be restricted, because all public freshwater lakes belong to all the citizens of Indiana.

Recommendation:

24. The Indiana Lakes Management Work Group encourages the Indiana Department of Natural Resources and other entities to continue to acquire, develop, and maintain public access to these waters.

Recommendation #25

Short Title: Increased Boater Education

Subgroup: Recreation

Status: Submitted to Work Group at 3-24-99 meeting
Revised version tentatively approved at 4-21-99 meeting
Approved at 5-19-99 meeting

Issue/problem Statement:

Lake users have identified the availability of information and education regarding recreational issues as a problem (as well as a probable solution). Boating law, rules, boat operation, and user ethics were all identified as areas that need improvement.

Recommendation:

25. The Indiana Lakes Management Work Group recommends that:

- a. the availability of boater education courses be increased statewide;
- b. more ethics training be provided in existing boater education training courses, as well as in media campaigns, publications, and all traditional information delivery systems that are utilized by lake users;
- c. The Indiana Department of Natural Resources (DNR) and other appropriate organizations develop mechanisms to deliver ethics education and a better understanding of lake laws and lake ecosystems to all segments of the public in order to reduce user conflicts; and
- d. additional funding be provided to the Law Enforcement Division of the DNR for enhancing the content and increasing the opportunity for boater education programs.

Recommendation #26

Short Title: Regulating Boating Activities on Public Freshwater Lakes

Subgroup: Recreation

Status: Submitted to Work Group at 4-21-99 meeting (Tentatively approved)

Approved at 5-19-99 meeting

Addition of item (b) proposed and approved at 6-14-99 meeting

Approved at 7-28-99 meeting

Issue/problem Statement:

Problems related to boat density and user conflict have been brought forth by lake users of all types. Boat speed limits, wakes, placid fishing locations, shallow water soils damage, wetlands protection, and Eurasian watermilfoil expansion are samples of the related problems brought forth. Due to current Indiana Law, the Indiana Department of Natural Resources (DNR) cannot effectively manage boater density and its associated environmental impacts on the public freshwater lakes.

The DNR needs greater authority to regulate public freshwater lakes. The general public seems to believe the DNR can do anything it needs to do to correct lake problems and user conflicts, but the enabling laws necessary to regulate public freshwater lakes to address specific lake or local needs are not in place.

Recommendation:

26. The Indiana Lakes Management Work Group recommends that the General Assembly modify IC 14-15-7-3, giving DNR the ability to regulate public freshwater lakes to the same degree it can already regulate reservoirs. By adding the proposed language below to the existing statute, DNR will be able to consider local issues that relate to individual lakes based on myriad regulatory needs.
 - a. Add a sixth paragraph stating: “(6) The establishment of zones in which the use of watercraft may be limited or prohibited for the purposes of fish, wildlife or botanical resource management, or for the protection of users.”
 - b. Add a seventh paragraph stating: “(7) Watercraft engaged in group or organized activities or tournaments.”

Recommendation #27

Short Title: Regulation of Personal Watercraft

Subgroup: Recreation

Status: Submitted to Work Group at 4-21-99 meeting
Tentatively approved at 4-21-99 meeting (with the understanding that other recommendations that refer to personal watercraft will be added to the recommendation as they are developed)
Approved at 5-19-99 meeting

Issue/problem Statement:

Lake users have voiced substantial concern over personal watercraft (noise, air pollution, dangerous operation, and rider qualifications) on Indiana's public freshwater lakes.

Since 1996, Indiana legislators have passed specific state legislation regarding personal watercraft. In addition, the U.S. Environmental Protection Agency has implemented regulations setting higher standards for reduced emissions for all watercraft including personal watercraft. The personal watercraft industry has developed new noise standards for manufacturing, and the Indiana Lakes Management Work Group has made additional recommendations for all boats to ensure noise level output cannot be altered beyond acceptable levels.

Recommendation:

27. The following recommendations have been developed to address this issue:

- a. Recommendation #23a - Revised Boating Regulations
- b. Recommendation #20 - Increased Enforcement of Lakes-Related Laws
- c. Recommendation #25 - Increased Boater Education
- d. Recommendation #26 - Regulating Boating Activities on Public Freshwater Lakes
- e. Recommendation #3 - Motorboat Watercraft Impacts on Lake Ecology

Recommendation #28

Short Title: Restroom Facilities at Public Access Sites

Subgroup: Recreation

**Status: Submitted to Work Group at 8-18-99 meeting
Tentatively approved with minor changes at 8-18-99 meeting
Approved at 9-28-99 meeting**

Issue/problem Statement:

Although studies suggest that human waste from boaters and other transient lake users is minimal in comparison to other sources, it is one area of pollution that can be reduced significantly by improved public behavior and ethics education. However, a key problem in relation to this phase of the human waste problem is the lack of public restroom facilities.

Indiana's legislature has made it illegal to have a toilet on board a watercraft unless it has a holding tank to prevent the waste from coming into contact with the waters of this state except through a sewage disposal facility approved by the Department of Environmental Management. In addition to this law, the Indiana Department of Natural Resources (DNR) has passed rules that require all marinas that can service more than five boats, and are on public lakes, to have waste dumping facilities for watercraft holding tanks.

There are, however, no facilities or funding for public use at most public access locations for boaters that do not have holding tanks on their boats.

Recommendation:

28. The Indiana Lakes Management Work Group recommends that:

- a. local entities which own and maintain improved public access facilities be encouraged to place restroom facilities on or near their access locations; and
- b. funding be provided to DNR to establish a program providing restroom facilities at its improved public access sites throughout the state.

Recommendation #29

Short Title: Watershed Planning and Management

Subgroup: Watersheds

Status: Submitted to Work Group at 4-21-99 meeting
Returned with #32 to BCS & Watersheds Subgroups at 4-21-99 meeting
Resubmitted at 7-28-99 meeting
Returned to Subgroup at 8-18-99 meeting
Resubmitted at 9-28-99 meeting
Edited by Bob Eddleman and resubmitted at 10-26-99 meeting
Tentatively approved (with edits) by the Work Group at 10-26-99 meeting

Issue/problem Statement:

A lake is said to be a reflection of its watershed. Each land user's or person's actions are important, not just because they affect that particular piece of land, but because they affect neighboring land and the health of the larger ecosystem. A close relationship exists between a lake and its watershed—as soil erosion occurs, some of the soil particles settle in the lake as sediment, and excess nutrients move into the lake with runoff water, providing the basis for eutrophication. Sediment, nutrients, and other pollutants come from both agricultural and urban sources. Currently, most actions taken by individuals in our lake watersheds do not consider the overall concerns.

The process of watershed planning and implementation provides a way to blend the actions of an individual with those of his/her neighbor to solve common concerns. Simply stated, watershed planning is a 4-step process carried out under a philosophy of broad involvement by stakeholders, using a consensus decision-making process. The 4 steps are:

1. Defining what the community desires from the watershed in 10 to 15 years.
OBJECTIVES
2. Defining what the watershed is like now.
INVENTORY
3. Determining what changes are necessary to reach objectives.
ALTERNATIVES
4. Defining changes to be made and how to make them.
WATERSHED PLAN

(More)

Recommendation #29 (continued)

When the watershed community has developed its plan, the implementation process becomes a series of many actions by individuals, groups, and units of government. Individuals can complete many actions fairly easily, while others may take significant time and financial resources.

Recommendation:

29. The Indiana Lakes Management Work Group recommends that:

- a. technical assistance and/or management agencies be structured as nearly as possible along natural geographic watershed boundaries;
- b. management decisions be based on a geographic watershed basis and be in agreement with locally developed watershed plans;
- c. local costs of watershed projects be obtained through drainage assessments or other appropriate methods; and
- d. consideration be given to priority approval of state funds in those watersheds where a watershed plan has been developed and accepted by the funding source.

Recommendation #30

Short Title: Assessment of Economic and Ecological Value of Indiana Lakes

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 4-21-99 meeting
Returned to Subgroup at 4-21-99 meeting
Resubmitted with new title and issue statement at 7-28-99 meeting
Tentatively approved at 7-28-99 meeting
Approved at 8-18-99 meeting

Issue/problem Statement:

Lakes are one of Indiana's most precious natural resources. They provide water supplies for drinking, industry, and other uses, flood control, educational opportunities, increased property values and tax revenue from lake frontage, as well as myriad recreational opportunities, including boating, skiing, swimming, diving, fishing, hunting, trapping, wildlife viewing, and photography for all Hoosiers. These opportunities also bring visitors and tourist income to the state. The global value of lakes has been estimated at over \$3,400 per acre (Costanza et al. 1990). Studies on lakes in Maine and Indiana indicate that property values are directly related to lake water quality. Limited research in Indiana indicated that lakes in LaGrange County may be worth over \$500,000 in annual tax revenue alone (Guthrie 1997). However, increasing use of lakes and land uses that detrimentally affect lake watersheds have taken their toll.

Restoration and management measures like dredging, aquatic plant management, and provision of recreational facilities requires funding and other resources. Restoration costs can range from \$100 to over \$2,000 per acre (Cooke et al. 1993). Many lake users take for granted the benefits of lakes and their management. No systematic estimate of the total economic value of lake resources in Indiana exists. This information would be useful in prioritizing funds and programmatic efforts for lake management in the state.

Recommendation:

30. The Indiana Lakes Management Work Group recommends that an assessment be made of the economic and ecological value of Indiana's public freshwater lakes and publicly owned reservoirs and their relationship to lake water quality and recreational resources through a study funded by the state of Indiana through a contract administered by the Indiana Department of Natural Resources.

Recommendation #31

Short Title: Land Use Planning in Lake Regions

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting (Returned to Subgroup)
Resubmitted to Work Group at 6-14-99 meeting (Returned to Subgroup)
Resubmitted to Work Group at 7-28-99 meeting (with new issue statement)
Tentatively approved at 7-28-99 meeting
Approved at 8-18-99 meeting**

Issue/problem Statement:

The shoreline environment (riparian zone) is one of the most important and sensitive areas within a lake. It represents the edge between the terrestrial uplands and the lake itself. Such edge communities are important habitat for a diverse set of species. The vegetation along the shoreline is further important in stabilizing the land edge from the erosive effects of wave action.

Federal and state laws provide that the public has a vested interest in protection of water resources. The Northwest Ordinance provides that the beds of navigable lakes are vested in the States, which hold title on behalf of the people. The Indiana Lake Preservation Act (IC 14-26- 2-5) places full power and control of all of the public freshwater lakes in trust by the State for the use of all its citizens. However, the state currently lacks jurisdiction over activities on adjacent land (i.e., landward of the legal shoreline) that can severely limit the quality of these water resources. Therefore, local communities are best positioned to determine how to address their land use needs. County planning and zoning can incorporate strategies based on protecting the ecological and economic significance of public lakes.

Environmentally sensitive landscape designs, along with legal protection of conservation areas, can maintain the quality of lake resources and the value of lake-related property. Best management practices (BMPs) for development and construction around lakes can include: management of riparian vegetation; restrictions on lot size; design of appropriate septic or sewage treatment systems; filtering buffer zones around construction areas; control of drainage and soil erosion during and after construction; control of “funneling” to protect critical shorelands and lake resources; use of caution when applying variances in areas that affect lake ecology; use of natural colors and natural materials in land-based construction; and planning for conservation easements and shoreline maintenance that enhance wildlife habitat and protect water quality. Counties, local communities, and planning agencies can pursue innovative methods of preserving green space around lakes, including Purchase of Development Rights (PDRs) and Transfer of Development Rights (TDRs). Such permanent legal mechanisms can prevent development in areas that would be damaging to lake resources.

(More)

Recommendation #31 (continued)

Placement of new infrastructure by extending sewer lines or upgrading roads in previously undeveloped areas attracts development and ecological disturbance to lakes and other aquatic systems that may be among the last remaining natural lake ecosystems in Indiana. In addition to protective zoning, areas that are currently undeveloped and which contain endangered or sensitive species can be protected from future development by limiting resources for building and transportation.

Some undesirable practices can be addressed through regulatory requirements in local building codes and county ordinances. Examples of shoreland ordinances that protect water quality and recreational resources are available from the county overlays that protect Lake Monroe, ordinances in Steuben County, and from the state of Wisconsin. The Hoosier Farmland Preservation Task Force recently issued final recommendations that include innovative protective measures for agricultural land and open space that could be applied to protection of critical green space around lakes. County planning and zoning would need to be in place in all Indiana counties that contain lakes for implementation of these programs.

Recommendation:

31. The Indiana Lakes Management Work Group recommends that:

- a. the Indiana Land Resource Council (ILRC), regional planning authorities, and the Indiana Department of Natural Resources (DNR), in cooperation with Soil and Water Conservation Districts (SWCDs), provide assistance to local units of government in developing county planning and zoning, county ordinances, and building codes that protect lake shorelands;
- b. local communities and county planners promote development that utilizes existing infrastructure rather than extending new infrastructure into undeveloped areas; and
- c. an educational effort through the DNR and the Indiana Department of Environmental Management support lake conservation efforts of local entities by providing more intensive guidance, technical assistance, and specific examples of planning and regulation for the protection of economic and ecological value of lake-related resources.

Recommendation #32

Short Title: Continuation of the Indiana Lake Management Work Group (ILMWG)

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 4-21-99 meeting
Returned with #29 to BCS and Watersheds Subgroups at 4-21-99 meeting
Considered at 5-19-99 Subgroup meeting
Resubmitted to Work Group (without change) at 8-18-99 meeting
Assigned to ad hoc committee at 9-28-99 meeting
Resubmitted to Work Group at 10-26-99 meeting
Tentatively approved with changes at 10-26-99 meeting
Approved at 11-18-99 meeting

Issue/problem Statement:

Over 600 people discussed lake issues at public meetings that were held at Tri State University, Angola, on August 20 and October 10, 1996. These meetings were facilitated by the Indiana Departments of Natural Resources (DNR) and Environmental Management (IDEM) in association with several legislators. In 1997, the Indiana General Assembly established the 26-member Lakes Management Work Group to take public comments and develop solutions for problems affecting Indiana lakes. By law, the work group's members represented a broad base of lake-related organizations, users, and researchers from across the state. The group met monthly from November 1997 through December 1999 to hear testimony and receive written comments on lake issues and recommended solutions through interim and final reports to the legislature and DNR. The extensive list of recommendations provides a basis for comprehensive management of the precious and irreplaceable lake resources in Indiana. However, implementation of these recommendations will require further research and coordination between state, federal, and local agencies and organizations. Additionally, new issues will face lake users as pressure on the resource continues to increase. There is currently no entity responsible for further development and oversight of the implementation phase of this effort.

Recommendation:

32. The Indiana Lakes Management Work Group (ILMWG) recommends extension of the ILMWG for coordination, review, expansion, and implementation of the recommendations. The ILMWG would continue to comprise a diverse group of individuals representing the legislature, lake users, lake related commerce, agriculture, universities, and applicable units of government. The ILMWG requests that the Indiana General Assembly establish sufficient funding in order to continue ILMWG functions. The group will meet at least twice each year and at the call of the Chair.

(More)

Recommendation #32 (continued)

The Indiana Lakes Management Work Group will continue to:

- a. facilitate collaborative efforts among commonly affected state, county, and local government entities in cooperation with lake residents and related organizations;
- b. receive and consider comments from the public and governmental entities regarding lake resource concerns;
- c. review, update, and coordinate implementation of existing and new recommendations by communicating with the Indiana General Assembly, the public, and other governmental bodies concerning lake resources;
- d. provide local communities engaging in lake management with access to technical and legal information;
- e. review and coordinate the development and maintenance of an Internet web site that includes information on management of lake and watershed resources in Indiana; and
- f. review all funding that is currently being utilized for Indiana's waterways as well as potential revenue sources that could be utilized as a resource for Indiana lawmakers to correct funding problems.

Recommendation #33

Short Title: Consolidation of Lake Management Functions in State Agency

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 6-14-99 meeting
Tentatively approved (with minor changes) at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

In the late 1940s, the Indiana General Assembly determined that the state's public freshwater lakes were important natural resources to be preserved, protected, and enjoyed by the public, and to be held in trust by the State which had full power and control. At that time, the Department of Conservation (now Department of Natural Resources) was assigned, or assumed, the responsibility of protecting and managing public freshwater lakes.

Later, additional lake-related laws were enacted and numerous rules and regulations were adopted. Also during the ensuing years, other state agencies such as the Department of Health and Department of Environmental Management, plus federal agencies (U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, USDA Natural Resources Conservation Service) became involved in varying degrees in lake-related matters. To complicate matters further, there are no fewer than five divisions (Law Enforcement, Fish and Wildlife, Water, Soil Conservation, State Parks and Reservoirs) within the Department of Natural Resources involved with some phase of lake management or protection.

As a result, lake management in Indiana over the past 50 years has evolved into a complex and somewhat uncoordinated array of responsible entities and programs. The resource has suffered, and the public is confused when it comes to contacting the correct agency for important information and advice.

Knowing who to contact on a particular issue is not always obvious. Staff who answer the phones do not always know where the caller should be directed. Sometimes this is due to a lack of sufficient or key information provided by the caller. At other times the person answering the phone has not been adequately trained to utilize the procedures or guidelines established for directing phone calls. Or the information provided is outdated or insufficient. This can be very frustrating to the callers as well as to the staff who are trying to assist them.

(More)

Recommendation #33 (continued)

Recommendation:

33. The Indiana Lakes Management Work Group recommends that the Governor of Indiana immediately issue a directive, Executive Order or otherwise, to the appropriate state agencies instructing them to review thoroughly all of the various lake management/protection programs and responsibilities, with the intent of consolidating programs, projects, and personnel, where appropriate, into one identifiable lake management unit within an existing agency of government.

Such consolidation would provide the following benefits:

- a. improved management and protection of the resource;
- b. improved service and communication to the public;
[This could be accomplished through the creation of a centralized point of contact for incoming calls/queries about various lake concerns (e.g., an easily recalled hotline number such as 1-800-4YR-LAKE or a common web site)].
- c. improved budgeting due to formation of an identifiable unit; and
- d. improved attention/recognition of our lakes.

It is also recommended that a reasonable number of concerned citizens be invited to participate during the above-mentioned review.

Recommendation #34

Short Title: Expansion and Use of Lake and River Enhancement (LARE) Funds

Subgroup: Recreation

**Status: Submitted to Work Group at 10-26-99 meeting (Tentatively approved)
Approved at 11-18-99 meeting**

Issue/problem Statement:

The Indiana Lakes Management Work Group has developed several recommendations that will improve Indiana's surface water quality, ensure recreational opportunities, and safeguard the future of the public lakes for its citizens. However, lake and watershed funding resources of all types are limited and therefore have had an adverse effect on programs that promote lake management efforts. In addition to the limited financial resources that are in place at this time, monies needed to carry forth many of the recommendations set forth in this report cannot be accomplished without additional financial support.

Recommendation:

34. The Indiana Lakes Management Work Group recommends that the "Lake Enhancement Fee" of five dollars (\$5.00) paid annually at the time of boat registration be increased to fifteen dollars (\$15.00) annually and be allocated as follows:
 - a. one third to be appropriated as is currently set forth by statute;
 - b. one third to be appropriated to the Law Enforcement Division of the Indiana Department of Natural Resources to be utilized for enforcement, navigation aids programs, boater education programs, and other public awareness programs as related to Indiana's waterways; and
 - c. one third to be used for sediment removal within the boundaries of publicly accessible lakes, where sediment was derived from watershed sources, as well as control of non-native, invasive plant and animal species in all waters where there is a clear public benefit.

Recommendation #35

Short Title: Land Acquisition for Lake Conservation

Subgroup: Watersheds

Status: Submitted to Work Group at 3-24-99 meeting
Returned to Subgroup at 6-14-99 meeting
Resubmitted to Work Group at 7-28-99 meeting
Tentatively approved (with changes) at 7-28-99 meeting
Approved at 8-18-99 meeting
Additional changes (short title and others) and approval at 10-26-99 meeting

Issue/problem Statement:

Flooding is an issue that affects many Indiana lakes and lake users. Flood events not only affect lake levels, but they also carry excess nutrients, pollutants, and sediments into lakes, negatively impacting water quality, plant and animal habitat, aesthetic beauty, and myriad recreational uses.

Wetlands within a lake's watershed can lessen the severity of flood events by storing excess water and slowing down the flow. Less water and slower flow means less soil and pollutants deposited in lakes. In addition, wetlands have the capacity to remove nutrients and pollutants from the water, recharge groundwater supplies, and provide excellent plant and wildlife habitat.

The Indiana Heritage Trust (IHT) is a public/private conservation partnership established in 1992 by the General Assembly to ensure that Indiana's rich natural heritage is conserved for, and held in trust by, its citizens today and for generations to come. Lands and waters are acquired from willing sellers and land donors, and are conserved as part of Indiana's system of state parks, reservoirs, forests, fish and wildlife areas, nature preserves, historic sites, trail and stream corridors, and wetlands, in conjunction with conservation partners including Indiana's land trusts. The IHT can provide funding for the protection of significant natural areas, endangered species habitats, wetlands, fishing, hunting, and other outdoor recreation sites. Many past IHT acquisitions have helped protect the functions and values of Indiana lakes.

The IHT is funded from fees derived from sales of the Environmental License Plate. However, given the number of eligible projects, the license plate funds are insufficient to meet demand. In the last three biennia, the General Assembly has enhanced funds from plate sales by \$5 million each biennium. With these funds, the IHT can acquire wetlands, shorelines, and forested areas in lake watersheds that will help reduce flooding and help maintain water quality, aesthetics, and rare species habitats. Other programs in the Indiana Department of Natural Resources (DNR) and private organizations also provide funding and technical support for acquisition and protection of natural resources as public land holdings.

(More)

Recommendation #35 (continued)

A recent nonpartisan study conducted by the Legislative Services Agency indicated that property taxes increased by an average of 35 cents on a \$100,000 property in those counties where Heritage Trust purchases had been made. However, the Lakes Work Group recognizes that payment in lieu of taxes continues to be a concern in counties where large public land holdings exist.

Recommendation:

35. The Indiana Lakes Management Work Group recommends that the Indiana General Assembly:

- a. provide an increase in Indiana Heritage Trust funding over the current \$5 million per biennium from the General Fund;
- b. pursue funding options to balance the loss of county property taxes with economic benefits to statewide citizens through a simple but fair formula of uniform land value assessment on all new DNR land acquisitions and a method whereby the county can request payment from a General Fund appropriation through the State Auditor; and
- c. reorganize the Heritage Trust purchasing process to enable quick purchases of special properties (including features such as early options for preselected or prioritized properties).

Recommendation #36

Short Title: Expansion of Wetland Reserve Program

Subgroup: Watersheds

Status: Submitted to Work Group at 3-24-99 meeting
Tentatively approved at 6-14-99 meeting
Approved at 7-28-99 meeting

Issue/problem Statement:

Flooding is an issue that affects many Indiana lakes and lake users. Flood events not only affect lake levels, but they also carry excess nutrients, pollutants, and sediments into lakes, negatively impacting water quality, plant and animal habitat, aesthetic beauty, and myriad recreational uses of the lakes.

Wetlands within a lake's watershed can lessen the severity of flood events by storing excess water and slowing down the flow. Less water and slower flow means less soil and pollutants deposited in lakes. In addition, wetlands have the capacity to remove nutrients and pollutants from the water, they can recharge groundwater supplies, and they themselves provide excellent habitat for plants and wildlife.

The 1990 Farm Bill established the Wetland Reserve Program (WRP), which has become one of the most popular farm programs ever. The legislation called for the enrollment of 975,000 acres of wetlands into the WRP. This target will be reached through appropriations scheduled for inclusion in the FY 2000 federal budget, effectively ending the program.

Recommendation:

36. The Indiana Lakes Management Work Group recommends that the Indiana Association of Soil and Water Conservation Districts, in association with farm organizations, environmental organizations, and other interested parties, work with Indiana's Congressional delegation to expand and fund the WRP program beyond current levels.

Recommendation #37

Short Title: Wetlands Protection

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting but not considered
Discussed at 5-19-99 Subgroup meeting (BCS & Watersheds Subgroups)
Tentatively approved with minor changes at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

Wetlands are extremely valuable features within lake watersheds. They have important functions for water storage, pollutant retention and transformation, and aquatic animal habitat. However, even though significant wetland restoration is occurring, Indiana continues to lose valuable wetlands and their important functions due to land use changes from both urban and rural activities. Wetland regulations are dispersed among several agencies and programs, and the specific requirements outlined within the Clean Water Act and the Farm Bill are inconsistent with regard to the farm community and land developers. This creates a burden for landowners that attempt to understand and comply with the wetland regulations.

Recommendation:

37. The Indiana Lakes Management Work Group recommends establishment of coordinated wetland regulations, to not only provide uniform protection for wetlands, but also to help the entire regulated community comply with wetland regulations.

Recommendation #38

Short Title: Stormwater Runoff from Developed Real Property

Subgroup: Watersheds

Status: Submitted to Work Group at 3-24-99 meeting (But not addressed)
Resubmitted to Work Group at 4-21-99 meeting (Returned with no changes)
Resubmitted to Work Group at 5-19-99 meeting (Returned with no changes)
Resubmitted at 7-28-99 meeting (Returned for editing)
Resubmitted at 8-18-99 meeting (Tabled until 9-28-99 meeting)
Resubmitted at 9-28-99 meeting (Tentatively approved)
Approved by the Work Group at 10-26-99 meeting

Issue/problem Statement:

Stormwater runoff from developed property creates a variety of pollution and flooding problems within Indiana watersheds. Water running off developed areas contains lawn fertilizers and pesticides, pet waste, oil from vehicles, rubber from tires, and other similar pollutants that are detrimental to watersheds and lakes. There are laws and regulations that control runoff in certain agricultural and construction settings, but not for management of stormwater for areas that are already developed (parking lots, lawns, etc.).

Effective July 1, 1999, the legislature added a section (IC 36-9-28.5) to Indiana law affecting management of stormwater runoff from developed real property that applies to counties and municipalities. By January 1, 2001, the statute requires that the "legislative body of a unit shall establish a policy of the unit for the management of stormwater runoff from developed real property in the unit. The legislative body may establish the policy by resolution or ordinance. The policy may, but is not required to, provide for the actual management of stormwater runoff from developed real property." Current policy (both state and local) addresses planning rather than implementation. There is a need for consistent and implementable policy on stormwater management in Indiana.

Recommendation:

38. The Indiana Lakes Management Work Group recommends that the state of Indiana (General Assembly and/or appropriate agencies) encourage effective management of stormwater runoff by:
 - a. introducing legislation that calls for development and implementation of stormwater drainage plans in accordance with policies created by counties and municipalities under IC 36-9-28.5; and

(More)

Recommendation #38 (continued)

- b. providing financial assistance to Soil and Water Conservation Districts (SWCDs) and local units of government for providing technical assistance to implement stormwater management plans.

Recommendation #39

Short Title: Flooding and Drainage

Subgroup: Recreation

**Status: Submitted to Work Group at 8-18-99 meeting (Tentatively approved)
Approved at 9-28-99 meeting**

Issue/problem Statement:

Several problems have been identified by lake users regarding potential damage to lakeshore property by recreational use and possible safety problems during temporary periods of unusually high water levels. Cited problems include slow response time by non-local officials with authority to close lakes, lack of local dam (water level) control, and lack of sufficient funds or authority to repair dams or other water level control structures.

Recommendation:

39. The Indiana Lakes Management Work Group recommends that:

- a. the authority to temporarily close lakes continue to rest with the DNR Division of Law Enforcement according to procedures outlined in the policy entitled "Public Freshwater Lake Closures and Restrictions" (August 1996). The DNR Division of Law Enforcement should review and update the policy as needed;
- b. no seasonal changes in water level be implemented where runoff storage capacity is insufficient to effect any significant reduction in flood damage or danger and where potential loss of recreation and natural resources might occur;
- c. no changes be made to current Indiana code governing the process to establish and maintain permanent legal lake levels; and
- d. additional funds be allocated to the DNR Division of Water to assist in repairs, removal, or replacement of faulty dams and for installation and inspection of water level control structures as needed.

Recommendation #40

Short Title: Fish Community Considerations

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 5-19-99 meeting (Returned to subgroup)
Resubmitted to Work Group at 6-14-99 meeting (Returned to BCS and Rec)
Resubmitted to Work Group at 7-28-99 meeting (Returned to BCS)
Resubmitted to Work Group at 8-18-99 meeting (Tentatively approved)
Approved at 9-28-99 meeting

Issue/problem Statement:

Sport fishing in Indiana's lakes is a major outdoor recreational activity, adds to the quality of life, and is big business. Each year nearly one million licensed anglers generate over 1.6 billion dollars of economic activity and support over 21,000 jobs in the state. The industry generates 40 million dollars in state sales tax, 14 million dollars of state income taxes, and 45 million dollars of federal income taxes. Much of the economic activity and recreational value of fishing depends on maintaining healthy fish communities.

Fish communities in lakes are impacted by a complex interaction of physical, chemical, and biological factors. Over time, the communities undergo natural successional changes in both species composition and abundance as the lakes go through a process known as eutrophication. Changes and impacts brought about by man often have adverse effects and accelerate the process. Modern, professional, scientifically-based management of fish communities is possible only through programs such as those that protect and restore habitats, maintain aquatic food webs, conserve and enhance fish stocks, control nuisance species, and manage biodiversity.

The Division of Fish and Wildlife (DFW) of the Indiana Department of Natural Resources is the lead agency involved with fish communities and their management in Indiana lakes. Consequently, strong support for fisheries research and management is paramount if Indiana lakes are to continue to provide quality fishing. Basic funding in support of the DFW mission and programs is badly needed to direct much needed additional attention to the lakes and their management. The funding needed is essential for such basics as adequate staffing, equipment, construction and maintenance of facilities, and operational support costs. Adequate up-front matching funds are also badly needed to obtain all available federal matching monies for fisheries programs in the Sport Fish Restoration Program.

(More)

Recommendation #40 (continued)

Recommendation:

40. The Indiana Lakes Management Work Group recommends that:

- a. the number of professional fisheries biologists employed by the Indiana Department of Natural Resources Division of Fish and Wildlife be increased by a minimum of 25%;
- b. sufficient continuing state funds be made available to meet necessary requirements for securing all federal matching funds for management of fish communities; and
- c. partnerships be formed between the DNR Division of Fish and Wildlife and federal, state, and local agencies, universities, anglers, and lake users to enhance fisheries research and fish community management efforts.

Recommendation #41

Short Title: Regulation of Fishing Tournaments on DNR Reservoirs

Subgroup: Recreation

**Status: Submitted to Work Group at 9-28-99 meeting (Tentatively approved)
Approved at 10-26-99 meeting**

Issue/problem Statement:

Complaints about recreational fishing activity at Indiana Lakes often center on fishing tournaments. Bass tournaments, due to their nature, size, and number, usually draw the most complaints. Most tournaments are held on a small number of lakes that are open to high speed boating. In addition, most are held on weekends when the number of other types of lake users can be higher in the warmer months. As a result, some lake users want greater controls placed on tournaments.

As of 1999, the Indiana Department of Natural Resources (DNR) Division of State Parks and Reservoirs prohibits tournaments during the summer months on all reservoirs except Monroe Reservoir. This prohibition exacerbates user conflicts on natural lakes in Indiana. Tournament participants oppose restrictions that unduly or unfairly limit their use of the several large bodies of water during the summer months at DNR reservoirs.

The Indiana Lakes Management Work Group has made a recommendation (#26b) to give the DNR the authority necessary to regulate tournaments on public fresh water lakes.

Ultimately, public reservoirs owned and operated by DNR and public freshwater lakes need to be regulated in a more similar fashion, but still allowing the particular state properties to make adjustments unique to their specific types and locations. The outright prohibition of a specific class of users from reservoirs is contrary to a balanced system of water recreation management for all users.

The total prohibition of fishing tournaments on eight of the nine reservoir properties is too substantially different from rules on other public waters and erodes public confidence in DNR's ability to put rules in place that treat all classes of lake users with equality.

Recommendation:

41. The Indiana Lakes Management Work Group recommends that 310 IAC 5-2-7 (DNR Division of State Parks and Reservoir's regulation of fishing tournaments) be modified to include summer tournament opportunities on all reservoir waters, or be deleted from the Administrative Code.

Recommendation #42

Short Title: Use of Hunting and Trapping for Management of Nuisance Wildlife

Subgroup: Recreation

**Status: Submitted to Work Group at 4-21-99 meeting
Tentatively approved by Work Group at 5-19-99 meeting
Changes added (and approved) at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

The Indiana Lakes Management Work Group recognizes that excessive concentrations of wildlife such as furbearers and migratory waterfowl may negatively impact water quality and ecosystems of public freshwater lakes. The Indiana Department of Natural Resources has administrative rules in place to provide for reductions of excessive populations of furbearers that are causing damage. Migratory waterfowl are regulated by the federal government. The Indiana Department of Natural Resources and the U.S. Fish and Wildlife Service are working together to maximize reductions in nuisance waterfowl to acceptable levels.

Recommendation:

42. The Indiana Lakes Management Work Group supports continuing the utilization of legal, effective, and appropriate hunting and trapping, as regulated by state statute and rule, to the fullest extent possible, as tools for addressing nuisance wildlife problems on and around Indiana's lakes.

Recommendation #43

Short Title: Control of Non-native, Invasive Aquatic Plants

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting
Returned to Subgroup at 5-19-99 meeting with no changes
Tentatively approved with minor changes at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

Aquatic plants form the foundation of a healthy and flourishing lake ecosystem. Healthy native aquatic plant communities discourage the spread of nuisance exotic plants and provide essential fish, wildlife, and water quality benefits to lakes. Non-native aquatic plants often do not provide the same positive ecological benefits as native plants. Once non-natives become established, their aggressive nature enables them to overtake native plant communities. Long term aquatic plant management plans are essential for effective control of nuisance plants without causing unintended detrimental impacts to native plants and lake water quality. Completed plans could be reviewed and approved by the Indiana Department of Natural Resources (DNR) before the use of state funds are available for use on individual lakes. Plans and permits should consider all acceptable control techniques, including hand harvesting, bottom covers, mechanical harvesting and herbicides. Control of non-native plants can be very expensive. Lake residents may be spending over \$800,000 annually for aquatic plant control in over 70 public freshwater lakes with an estimated total demand for exotic plant treatment of over \$1.2 million at over 170 northern Indiana lakes (DNR Division of Soil Conservation, 1998). Current state agency operational funds are not adequate to assist in aquatic plant control efforts beyond state-owned properties. In the 1970s and 1980s, legislation was proposed to establish a "Public Waters Weed Control Fund." The proposed bills would have allocated \$1 million from the general fund for the DNR to provide 50% cost-sharing assistance to individuals issued aquatic weed control permits. These measures were defeated due to lack of sufficient public support. Aquatic plant management planning and funding programs in Wisconsin and Florida could serve as a model for Indiana.

Recommendation:

43. The Indiana Lakes Management Work Group recommends that:

- a. public funds be available to help communities control non-native, invasive, aquatic plants in public lakes with a comprehensive aquatic plant management plan developed according to guidelines to be established by the DNR;

(More)

Recommendation #43 (continued)

- b. an aquatic plant management plan be submitted and approved by DNR prior to any application of aquatic herbicides in the public waters of the state, as regulated under IC 14-22-9-10;
- c. state jurisdiction over aquatic plant control activities be expanded to include all types of physical, mechanical, biological, and chemical aquatic plant control methods in areas of public waters regulated under IC 14-22-9-10; and
- d. treatment cannot exceed 25' of shoreline or >6' depth without permit.

Recommendation #44

Short Title: Threats from Exotic Aquatic Nuisance Species

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting
Tentatively approved at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

The introduction of exotic aquatic nuisance species (ANS) into Indiana waters is a source of biological pollution that threatens the ecological and economic value of lakes and reservoirs. If introduced species become established through reproduction, they can disrupt natural ecological systems by predation, competition, or parasitism. These species often are not controlled by natural predators or diseases and can overwhelm resources in competition with desirable species. Some examples of aquatic species that have become established in inland lakes in Indiana at disruptive levels are Eurasian watermilfoil, curly-leaf pondweed, purple loosestrife, zebra mussel, spiny water flea, and carp. Introduction of these species has occurred through ballast water in the shipping industry, transfer of recreational boats between lakes, and intentional planting for human use. Economic costs include: cleaning of water intake pipes at public water supplies and hatcheries; competition for food or space with sport fish, commercial mussels, and endangered species; replacement of native habitat with plants unsuitable as cover, food, or nesting sites for aquatic and land-based wildlife; and impairment of recreational use of waters by boaters and swimmers. Physical, mechanical, chemical, and biological techniques are available for management of invasive species. The Great Lakes Commission recommends that all states within the region develop comprehensive ANS management plans. These plans facilitate coordinated management between federal, state, and local agencies in conjunction with citizen efforts. The Commission also provides small amounts of funding to control nuisance species to states with established plans.

Recommendation:

44. The Indiana Lakes Management Work Group recommends that:

- a. a coordinator position in the Indiana Department of Natural Resources (DNR) Division of Fish and Wildlife be funded to develop and implement a "Comprehensive State Management Plan for the Prevention and Control of Non-indigenous Aquatic Nuisance Species;"

(More)

Recommendation #44 (continued)

- b. the DNR Division of Fish and Wildlife develop an educational campaign to raise awareness of the potential harm from exotic aquatic species (adapting materials developed by other state and federal agencies where applicable);
- c. the DNR Division of Fish and Wildlife enlist volunteer organizations in recognizing and reporting occurrences of exotic species; and
- d. the DNR Division of Fish and Wildlife conduct a cost-benefit study for appropriate use of biological controls in public lakes, including triploid grass carp and herbivorous aquatic insects. The study should address support of research and development of new biological control methods and review current laws as necessary to provide safe, effective use of biological controls.

Recommendation #45

Short Title: Control of Nuisance Geese

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 4-21-99 meeting
Returned to Subgroup at 5-19-99 meeting
Resubmitted to Work Group at 7-28-99 meeting
Edited by Subgroup and resubmitted to Work Group at 8-18-99 meeting
Tentatively approved at 8-18-99 meeting
Approved at 9-28-99 meeting

Issue/problem Statement:

The number of Canada geese nesting and residing year round in urban areas in the state of Indiana is increasing. This increase is the result of changes in the urban environment that initially attracted a few geese, then allowed for successful reproduction and high rates of survival in this new population of geese in the protected setting of urban America. Ideal goose habitat has inadvertently been created by enhancing open expanses of short grass, in the form of mowed lawns and parks, and accessible water in the abundant natural and artificial water bodies around building developments, parks, and golf courses. Geese adapt to urban conditions due to ideal grazing habitat and development of standing water that lacks predators. A goose can deposit about a half pound of fecal material on lawns or in the water each day. Federal law under the North American Migratory Bird Treaty protects Canada geese. The treaty allows the geese to be killed during either a regulated hunting season or when their presence results in property or crop damage. However, the law requires that nonlethal options be tried prior to resorting to lethal controls.

The Indiana Nuisance Wildlife Hotline can provide information on management and control resources for nuisance wildlife. Wildlife professionals from the Indiana Department of Natural Resources (DNR) Division of Fish and Wildlife or USDA Wildlife Services are available from 8 a.m. to 5 p.m. at 1-800-893-4116, or in Lafayette at 496-3968. Information is also presented at a web site at <http://www.anr.ces.purdue.edu/wild>.

Recommendation:

45. The Indiana Lakes Management Work Group recommends that:

- a. lake residents and visitors stop feeding nuisance waterfowl, and that they make the lakeside environment less attractive to Canada geese by landscaping with shrubs and tall grasses instead of having a manicured water edge;

(More)

Recommendation #45 (continued)

- b. the DNR work with the U.S. Fish and Wildlife Service (USFWS) to extend hunting seasons or alter times, increase bag limits for nuisance geese, and investigate other effective methods of control; and
- c. the DNR and USFWS distribute educational materials regarding management of nuisance geese to lake residents and visitors through lake associations, Soil and Water Conservation Districts, and other available avenues.

Recommendation #46

Short Title: Fertilizer and Pesticide Management Brochure

Subgroup: Watersheds

**Status: Submitted to Work Group at 3-24-99 meeting
Tentatively approved (with minor edits) at 3-24-99 meeting
Approved at 4-21-99 meeting**

Issue/problem Statement:

Pesticides and fertilizers can be very harmful to Indiana's lakes. Most people probably realize that pesticides can be harmful, but many people do not understand that applying too much fertilizer to their grass can have detrimental impacts on lakes, rivers, streams, and other natural resources. All Hoosiers need to do a better job of managing the use of pesticides and fertilizers so no harm is done to the state's natural resources.

People who use fertilizers on their property (especially lawns, golf courses, parks, and cemeteries) should have the soils tested before deciding on how much (if any) fertilizer to apply. Excess fertilizer will not make the grass any greener, but *can* make nearby lakes greener—green with algae and other weeds that can choke the lake and make it less appealing for recreational use.

An informational brochure is needed to increase public awareness of this issue. The brochure should include information about the importance of soil tests, how to conduct a test, and where the samples could be sent for analysis.

Recommendation:

46. The Indiana Lakes Management Work Group recommends that the Indiana Department of Natural Resources, with the help of Purdue Extension, the USDA Natural Resources Conservation Service, the Indiana Association of Soil and Water Conservation Districts, and other experts as needed, develop and publish a brochure on fertilizer and pesticide management on non-agricultural areas (lawns, cemeteries, golf courses, parks, etc.) and distribute copies to Soil and Water Conservation Districts, extension offices, and the Indiana Office of the State Chemist.

Recommendation #47

Short Title: Consolidation of Lake Information

Subgroup: Biology/Chemistry/Shorelands

Status: Submitted to Work Group at 4-21-99 meeting
Tentatively approved with minor changes at 6-14-99 meeting
Approved at 7-28-99 meeting

Issue/problem Statement:

A number of local, state and federal agencies collect information on Indiana lakes. For example, the Indiana Department of Environmental Management collects water quality data, the Indiana Department of Natural Resources collects fisheries data, and the Indiana Department of Health and local health departments collect bacteriological data. The U.S. Army Corps of Engineers and other federal agencies routinely collect additional water quality data on Indiana lakes. When people need to obtain the most current information on a particular lake for decision-making or other purposes, they must not only search these multiple agencies, but also must contend with multiple data formats. This may result in a duplication of time and resources.

Recommendation:

47. The Indiana Lakes Management Work Group recommends that the state of Indiana develop a comprehensive interagency database of lake information within the context of a larger, coordinated natural resources-related database that is Geographic Information System based. This will require use of a common data-reporting format for future lake data collected by the individual agencies.

Recommendation #48

Short Title: Education on Lake Property Management for Owners and Realtors

Subgroup: Biology/Chemistry/Shorelands

**Status: Submitted to Work Group at 4-21-99 meeting
Tentatively approved at 6-14-99 meeting
Approved at 7-28-99 meeting**

Issue/problem Statement:

Effective management of lakefront property requires knowledge that is specific to regulations and activities associated with lake management. Citizens on lakes have expressed frustration with the complexity of resource management agencies and regulations governing shoreline and lake activities. Several other states with significant waterfront property (e.g., Florida, Minnesota, Wisconsin) have produced handbooks for realtors that contain information on regulations, septic system maintenance, proper lawn care, wildlife interactions, shoreland ordinances, long-range planning for lake and watershed management, sources of technical and financial assistance, development of effective lake associations, guidelines for lake management activities, and other issues.

Recommendation:

48. The Indiana Lakes Management Work Group recommends that the Indiana Department of Natural Resources, in cooperation with other agencies and organizations including the Indiana Lakes Management Society, develop a booklet and short course regarding land and water management practices for use by realtors, other lake-related businesses, and residential lake front property owners.

Draft Legislation Supported by the Work Group

The Work Group recognized that several of its recommendations would require legislation in order to achieve those recommendations' goals. Senator Meeks (Work Group Chair) worked with the Legislative Services Agency to develop draft bills for this purpose. The Work Group reviewed the bills listed below, and supports the passage of these bills (with changes made by the Work Group at the 11-18-99 meeting) by the Indiana General Assembly. The complete text of these bills (as distributed to the Work Group) can be found as attachments to the 11-18-99 Meeting Summary in Appendix A.

PD 3724 Residential septic systems (corresponds to Recommendations #13 and #15b)

PD 3644 Boating regulation (corresponds to Recommendations #3a, #23, #25, and #26)

PD 3685 Natural resources and environmental permits (corresponds to Recommendations #16, #19, and #43c and b)

PD 3288 Drainage boards and regulated drains (corresponds to Recommendation #17)

PD 3051 Boating regulation by department of natural resources (corresponds to Recommendations #26 and #41)

S 44 Public Freshwater Lakes (corresponds to Recommendation #21)

S 46 Lakes Management Work Group (corresponds to Recommendation #32)

S 48 Indiana Heritage Trust Funding (corresponds to Recommendation #35)

(More)

Concurrent Resolution: Consolidation of Lake Management Functions

In addition to the draft bills listed above, the Work Group also reviewed a proposed concurrent resolution pertaining to Recommendation #33. The resolution was approved with minor changes from the Work Group (see attachment to the 11-18-99 Meeting Summary in Appendix A).

The Work Group recognizes that there are additional recommendations in this final report that may require future legislation to achieve.

Appendices

Appendix A - Summaries of Lakes Management Work Group Meetings
(separate cover)

Appendix B - Summary of Public Testimony Given at Lakes Management Work Group Meetings
(separate cover)